PACKAGE engineering

How fast should your lines run?

Before deciding to run "full speed ahead," it's a good idea to take a look at equipment limitations, avoidable and unavoidable downtime, and such line-pacing factors as order or run length. (See page 19)

Penetrating the polyethylene haze

Two experts urge classifying polyethylene and measuring its performance by its density—using the proposed ASTM plan for assigning each "poly" to one of three types, i.e., density ranges. (See page 22) .

Technique of cutting packaging costs

Discussing "value analysis" as a tool of packaging cost reduction (1) by scrutiny of individual package components, then (2) by weighing alternatives—thus getting factually based decision-making. (See page 28)

Complete table of contents on Page 2

SEPTEMBER 1958

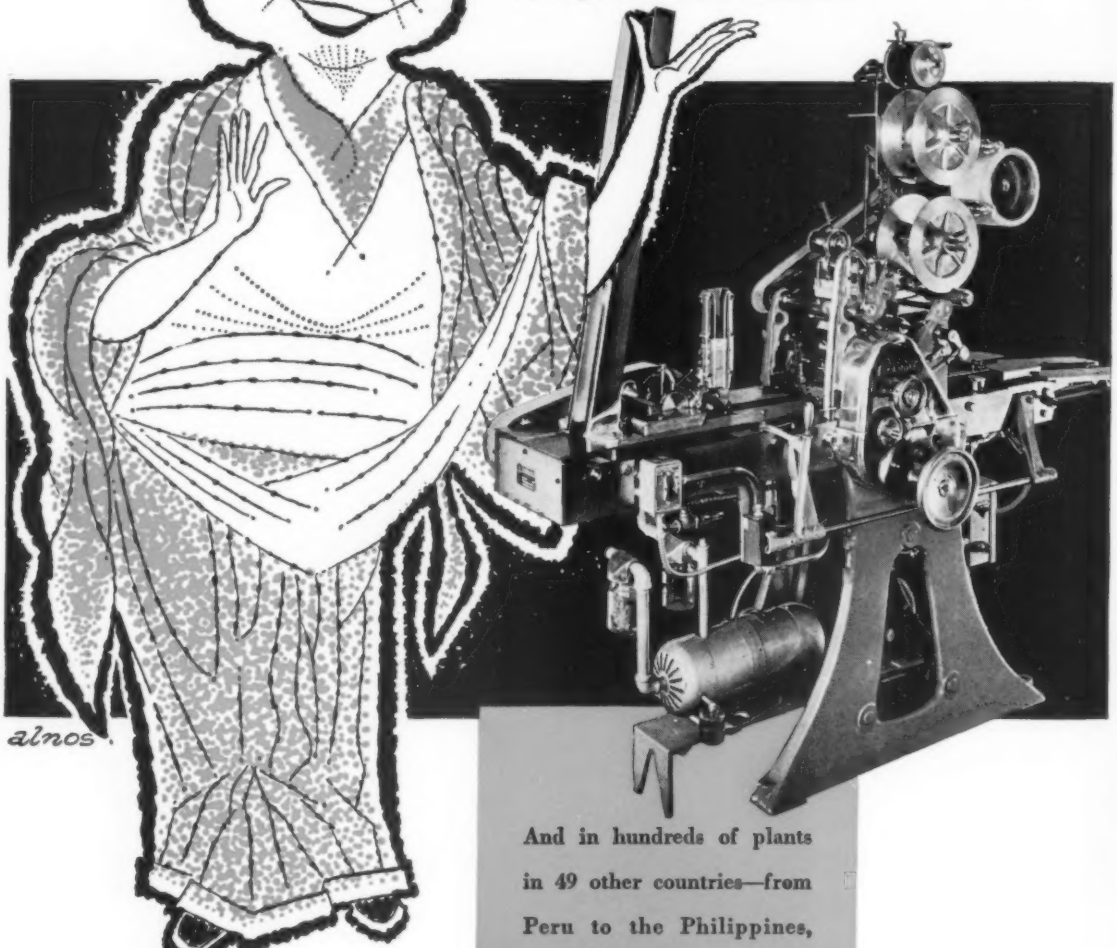
VOLUME 3 • NUMBER 9

BULK RATE
U. S. POSTAGE
PAID
PONTIAC, ILLINOIS
PERMIT NO. 3

In Hong Kong they say:

世界上之最经济·最讯速之包装機 司梗田下

Translation: "For fast, money-saving overwrapping, there's nothing like our Scandia machine."



And in hundreds of plants in 49 other countries—from Peru to the Philippines, from Southern Rhodesia to Thailand — Scandia's machines evoke the same praise.

CHARTING NEW PATHWAYS IN PACKAGING

SCANDIA
PACKAGING MACHINERY COMPANY
NORTH ARLINGTON N. J.

Makers of Standard and Custom Machines for Bundling · Banding · Multiple Wrapping · Stamping · High-Speed Wrapping

For more information circle No. 201 on Reader Service Card

Aluminum Foil Packaging– Prevention of Frozen Food Dehydration

Report No. 17 of a Series by Reynolds Metals Co.

"Freezer burn", a type of desiccation in frozen foods, is a serious problem facing packers, retailers and consumers alike. Resulting deterioration in quality, depending upon the degree of freezer burn, may include: objectionable appearance, irreversible dehydration of proteins, dryness and toughness in food tissues, and oxidation and rancidification of fats underlying dehydrated areas. The problem is particularly acute in products which tend to leave air-filled voids within a package, such as meats, poultry, fish, vegetables and certain prepared foods.

Laboratory tests show that package design and material can have a profound effect on this dehydration of frozen foods and that aluminum foil packaging offers exceptional protection.

Cut Moisture Loss

Aluminum foil packages have proved their ability to maintain contents at lower temperatures in transit and storage (See Reports No. 5 and No. 9). This indicated lower thermal energy content, of course, results in lower rates of evaporation or sublimation of contained moisture.

Dehydration is a serious factor even with frozen liquids which have no initial air spaces between product and package. As moisture is lost the product shrinks and leaves a space between itself and the package with subsequent further dehydration and oxidation. The extremely low water vapor transmission rate of aluminum foil packages is particularly effective for minimizing dehydration.

Besides protecting against voids caused by shrinkage, aluminum foil —with its ability to conform intimately to irregular shapes—can largely eliminate pockets of trapped air which occur in the packaging of large irregularly-shaped products such as poultry.

The higher thermal conductivity of aluminum provides more uniform and more rapid freezing. The uniformity of freezing reduces the possibility of localized warmer and colder areas within the product, which have been found to accelerate freezer burn. And the faster freezing results in the formation of smaller ice crystals which do not rupture food cells as readily as larger ones. This permits greater retention of moisture by the sound cells.

Halves Freezing Time

Fig. I shows the time required to reduce the temperature of packaged peas to 0°F in an air-circulated freezer at –10°F. Note that the contents of the aluminum foil package required approximately half as much time as the others to reach 0°F. In plate freezing, which is much faster, the same ratios of time are obtained. Fig. II illustrates in another way the ability of aluminum foil to reduce the dehydration of frozen foods. Because of vapor pressure differentials, frozen moisture tends to be drawn from the food itself and to form ice crystals within voids or cavities in the package. The graph shows the amount of this "cavity ice" formed in packaged frozen green beans stored at –10°F. It is to be noted that this formation, which is a measure of the dehydration, is greatest in the earlier months of storage and that it was two to three times as heavy in the non-aluminum packages.

For further information on this or any other phase of aluminum packaging protection, call your local Reynolds representative. Or write to **Reynolds Metals Company,** Richmond 18, Virginia.

©1958 by Reynolds Metals Co.

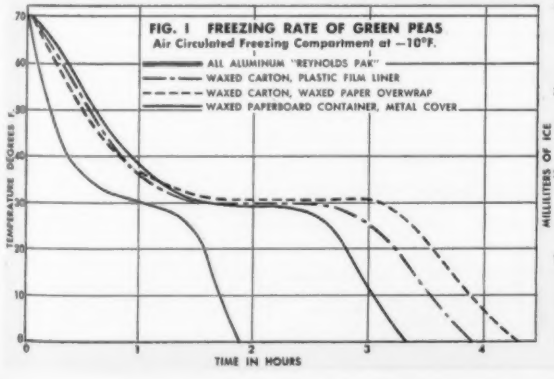


FIG. I FREEZING RATE OF GREEN PEAS
Air Circulated Freezing Compartment at –10°F.
ALL ALUMINUM "REYNOLDS PAK"
WAXED CARTON, PLASTIC FILM LINER
WAXED CARTON, WAXED PAPER OVERWRAP
WAXED PAPERBOARD CONTAINER, METAL COVER
TEMPERATURE DEGREES F.
TIME IN HOURS

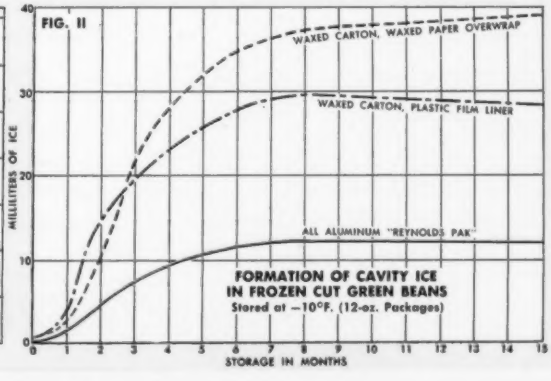


FIG. II
WAXED CARTON, WAXED PAPER OVERWRAP
WAXED CARTON, PLASTIC FILM LINER
ALL ALUMINUM "REYNOLDS PAK"
FORMATION OF CAVITY ICE
IN FROZEN CUT GREEN BEANS
Stored at –10°F. (12-oz. Packages)
MILLILITERS OF ICE
STORAGE IN MONTHS

SEPTEMBER 1958 • VOLUME 3 • NUMBER 9

PACKAGE engineering

AN ANGUS J. RAY PUBLICATION

For your calendar

September 7-20. First Annual Packaging Conference, Industrial Management Center, Lake Placid Club, Essex County, New York. Contact: James R. Bright, Industrial Management Center, 56C Robbins Road, Lexington, Massachusetts.

September 9-11. 1958 AMC Packaging and Materials Conference, San Bernardino Air Materiel Area, Norton Air Force Base, California. Contact: Major J. V. Oxman, SBSQ, San Bernardino Air Materiel Area, Norton Air Force Base, California.

September 15-17. AMA Clinic on Polyethylene, Hotel Astor, New York City. Contact: Franc M. Ricciardi, American Management Association, 1515 Broadway, New York 36, New York. *Telephone: Judson 6-8100.*

September 30, Oct. 1-2. Fourth Joint Military-Industry Packaging and Materials Handling Symposium, sponsored by the Department of the Navy in cooperation with other military departments and the Department of Commerce, in Washington, D.C. Contact: Head, Packaging Section, Supply Programs Division, Office of Naval Material, Washington 25, D.C. *Telephone: Liberty 5-6700, Ext. 61061.*

October 13-15. Packaging Institute, 20th Annual Forum, Edgewater Beach Hotel, Chicago, Illinois. Contact: Charles A. Feld, executive director, Packaging Institute, 342 Madison Avenue, New York 17, New York. *Telephone: Murray Hill 7-8875.*

October 14-16. Society of Industrial Packaging and Materials Handling Engineers, 13th National Industrial Packaging and Handling Exposition, and SIPMHE short course, Chicago Coliseum, Chicago, Illinois. Contact: C. J. Carney, managing director, Society of Industrial Packaging and Materials Handling Engineers, Suite 1534, 14 E. Jackson Blvd., Chicago 4, Illinois. *Telephone: Harrison 7-6123.*

October 27-29. AMA Clinic on Packaging For Truck Fleet Operations, Hotel Astor, New York City. Contact: Franc M. Ricciardi, American Management Association, 1515 Broadway, New York 36, New York. *Telephone: Judson 6-8100.*

Articles

19 Factors affecting packaging line speed, by Fred Kessler, engineering manager, Miller Brewing Company

Equipment limitations, fixed and avoidable downtime, special requirements for high speed, methods of downtime evaluation—all these influence line speeds.

22 Polyethylene density: Yardstick of classification and performance, by Kenneth A. Kaufmann, manager, plastics technical service, and John Morris, plastics technical service, Spencer Chemical Company

Taking a look at the proposed ASTM three-type classification (i.e., ranges of polyethylene density) and its application to performance factors.

28 Reduction in packaging costs through "value analysis," by Bernard F. Major, manager, packaging laboratory and receiving and stores division, Ortho Pharmaceutical Corporation

Techniques of cost cutting by evaluating individual package components and reaching factually-based alternatives—including worksheets.

46 Getting wrap effectiveness without actual wrapping, by Walter A. Pisarski, packaging engineer, Stewart-Warner Corporation

A method of using successive layers of decompressed creped cellulose wadding provides the performance of a wrapped package for small automotive parts.

54 Using a calculator to compute box strength

Forest Products Laboratory experts came up with techniques of making these calculations, then organized all this into an easy-to-use set of dials.

58 Navy holds Fourth Annual Joint Military-Industry Packaging & Materials Handling meet Sept. 30-Oct. 2

Including the topics, chairmen, dates, hours, and auditorium locations of panel sessions and general information on this symposium.

69 Two schools announce package engineering courses

Presenting some details of this fall's packaging course offerings—together with information concerning whom to contact.

Package Engineering is indexed in Engineering Index.

Departments

4 A note from the publisher

6 Letters to Package Engineering

8 The PULSE/ of packaging

60 Announcements of machinery and products

62 Industry literature available free

68 Book review

70 Classified advertising

72 What we think (our editorial page)

Reader Service Card inside back cover

Our December 1958 issue will carry a cumulative editorial index for the year listing our feature articles by subject, author, and other headings.

The one case where

Feeling the Film is Knowing the Fabric!

SHEER and soft to touch, VITAFILM is the one transparent packaging film that transmits the *true color* and *true "feel"* of fine fabrics *right through* the package!

Not only pleasing to touch and possessing wonderful contact clarity—this unique Goodyear film doesn't attract dust!

VITAFILM is as rugged as it is glamorous: Customers can paw and poke their way to buying without denting the protection VITAFILM affords fine products.

Prints beautifully, adapts smoothly to high-speed packaging machinery, heat-seals to a welded "won't part" seam, has long shelf-life.

And the cost? Lower than ever in history!

WHY WAIT? Call or write: The Goodyear Packaging Engineer, Packaging Films Dept. U-6432 Akron 16, Ohio.

The greatest thing you can place between you and your customer

Vitafilm by GOODYEAR

The finest in sheer protection

Vitafilm, a Polyvinyl chloride—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

A note from the Publisher

One of the most abused and least definitive terms in the packaging field is "packaging engineer." It is defined in Packaging Institute's Glossary of Packaging Terms as follows:

One who performs package engineering.

In actual practice the phrase "packaging engineer" is used to describe both the most highly skilled and educated individual engaged in the science of package engineering and, at the other extreme, it is used to give an air of authority to an individual who has few, if any, qualifications to give him a professional standing in packaging. These two extremes are used by both package user and package supplier alike.

A man who is a mechanical engineer or a chemical engineer, or 'most any kind of an engineer except a packaging engineer, describes his background or his job by his title. If the packaging engineer—the man engaged in packaging—could get universal recognition as part of his profession, his status within his company would be greatly enhanced.

Today, two organizations in the packaging field—Packaging Institute and Society of Industrial Packaging and Materials Handling Engineers—have professional memberships. While I think there is little in common between packaging men and materials handling men, there is a lot in common between men engaged in packaging consumer and industrial products.

Why should a professional packaging man from General Motors get different professional recognition than his counterpart at General Mills—the former as a professional member of SIPMHE, and the latter as a professional member of PI? Should the packaging man at International Business Machines, who decides how to package an accounting machine, get a different professional recognition than the IBM man who decides how to package lubricants for these machines in collapsible tubes? I don't think so.

In October, both PI and SIPMHE are holding annual meetings in Chicago at the same time. It would be an ideal time for the boards of directors of the two organizations to discuss a single certificate to be awarded to professional members of both organizations, a certificate that would recognize the professional packaging man, regardless of the type of package or product with which he works.

To further increase the desirability of such a certificate, the requirements should be at least as rigid as those set up by TAPPI, who require ten years' experience, with at least three of these ten years in a position of responsibility.

I believe a single source of recognition with rigid requirements would give every packaging man who attained this certificate more status than he now has, both in his own company and within the packaging field as a whole, and would be a step toward pulling the whole packaging field closer together.

Angus J. Ray
Publisher

PACKAGE engineering

AN ANGUS J. RAY PUBLICATION

Angus J. Ray
Publisher

R. Bruce Holmgren
Editor

Harry E. Vick, Jr.
Associate Editor

Elizabeth Griffith
Assistant Editor

Laurence V. Burton
Contributing Editor

Irwin F. Megargee
Eastern Manager

Anne Bernhard
Business Manager

Lloyd Gossman
Circulation Manager

Burton Cherry
Art Director

Executive and editorial offices:
185 North Wabash Avenue
Chicago 1, Illinois
Telephone: FInancial 6-1440

Eastern Advertising Sales Offices:
Irwin F. Megargee
Eastern Manager
National Bank Building
Ocean City, New Jersey
Telephone: Ocean City 3519

Arnold Gieseler
299 Madison Avenue
New York 17, New York
Telephone: Yukon 6-8575

West Coast representatives:
The Robert W. Walker Company,
730 South Western Avenue
Los Angeles 5, California
Telephone: Dunkirk 7-4388
57 Post Street,
San Francisco 4, California
Telephone: Sutter 1-5568

Package Engineering is published monthly by Angus J. Ray Publishing Co., 185 North Wabash Avenue, Chicago 1, Illinois. Angus J. Ray, president; R. B. Holmgren and I. F Megargee, vice presidents; James G. Culbertson, secretary and Ethyl K. Ray, treasurer. Please address articles for publication and correspondence regarding the editorial content to the editor. Statements and opinions expressed in articles and editorials are those of the respective authors, for which Package Engineering assumes no responsibility.

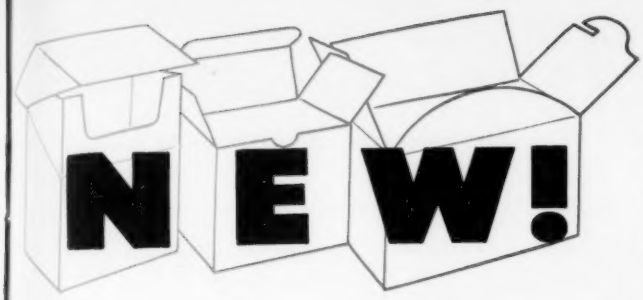
Copyright 1958 by Angus J. Ray Publishing Company. The name Package Engineering is registered in the U. S. Patent Office.

Package Engineering is circulated without charge to engineering, research, development, production and purchasing personnel concerned with packaging in all companies packaging their products for marketing or shipment. Qualified recipients thus are engineering and technical personnel concerned with package research and development, packaging production and package purchasing, within the United States, to all others, the subscription price is $10.00 a year.

Postmaster: Please send Form 3579 to Package Engineering, 185 N. Wabash Avenue, Chicago 1, Illinois.

Member of
Business Publications Audit
of Circulations, Inc.

BPA



Two new folding carton boards... made to Riegel's high quality standards... and competitively priced.

Riegel's FOLDBRITE™

FULL-BLEACHED SULPHATE BOARD

Riegel's FOLDCOTE™

FULL-BLEACHED SULPHATE BOARD, ON-MACHINE COATED ONE SIDE

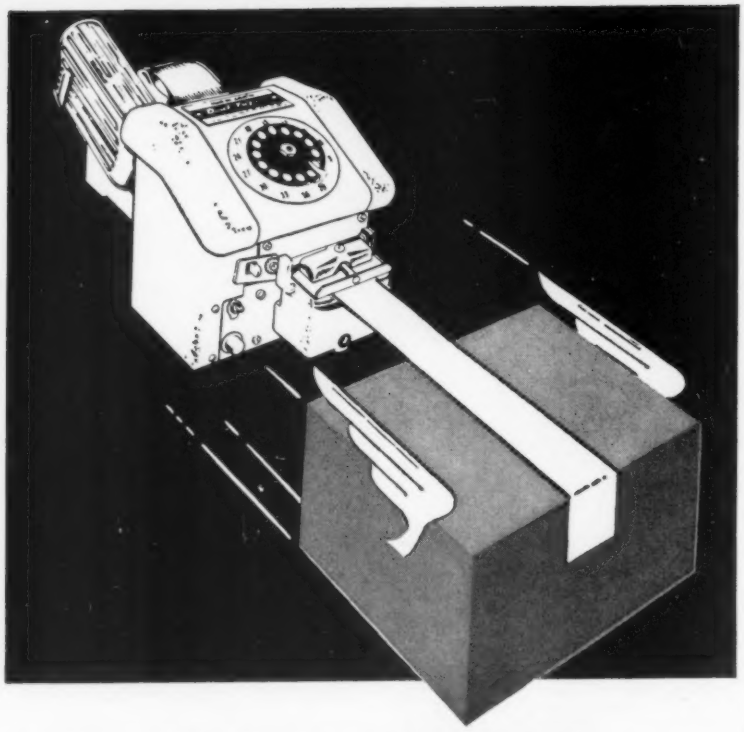
- OUTSTANDING BRIGHTNESS AND CLEANLINESS
- SMOOTH, EVEN SURFACE FOR HIGH-SPEED QUALITY PRINTING
- EXCELLENT FOLDING AND SCORING STRENGTH
- AVAILABLE IN .007 TO .026 CALIPER

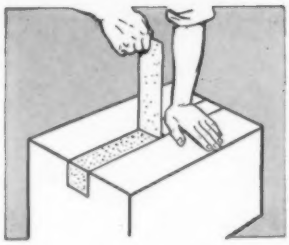
"Carolina Belle"... Riegel's giant new bleached paper and board machine at Acme, N. C., is now in production. We believe that its new Foldbrite and Foldcote grades are outstanding in their field, and deserve your serious consideration. A wide range of other bleached board specialties can be tailor-made to your requirements. Write or phone for samples, prices and full information.

Riegel PAPER CORPORATION

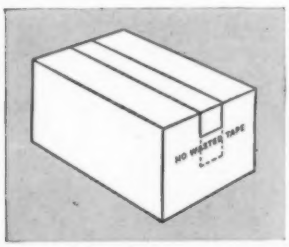
260 Madison Ave., New York 16, N.Y.

ATLANTA • BOSTON • CHICAGO • EDINBURG, IND. • SAN FRANCISCO





TAPE STICKS TIGHT—Make the tear test. Try to pull off tape applied from a Marsh Dial-Taper. Carton tears first, proving that the seal is stronger than the board.



NO WASTED TAPE—Any tape that overlaps end of carton more than 3" is wasted. Marsh Dial-Taper measures exact tape length you need, saves up to 1 tape roll in 5.

T-30

SHIPPING WORK FLIES

WITH A **MARSH**
ELECTRIC DIAL-TAPER

Dial desired length—out comes moistened, ready-to-use tape for any size carton.

Electrically-heated water softens tape glue for complaint-proof seal. Uses regular kraft or reinforced gummed tape.

Users report, "quick, strong seal and neat, uniform packages. Up to 20% savings in time and tape."

See the Dial-Taper in action, taping your own cartons. For free demonstration, phone your nearest Marsh dealer, or write . . .

MARSH *Electric*
Dial-Taper

Marsh Stencil Machine Company, 34 Marsh Bldg., Belleville, Illinois

Letters to PACKAGE engineering

Re: Machine manuals

Gentlemen:

As you will see from the attached, I even read the editorials in PACKAGE ENGINEERING. Since I do this of my own free will, it is obvious that I enjoy receiving your publication.

I was particularly interested in the attached editorial on the subject of "Machine Manuals" since the preparation of such manuals is a project in which I engage from time to time.

L. E. James
Merchandising Manager
Better Packages, Inc.
Shelton, Conn.

The hours you and other machinery manufacturers spend on manual preparation is time well spent and can mean dividends to users—fewer service calls. We hope that users take full advantage of the manuals you manufacturers so carefully assemble. Those doing so are reaping the rewards.

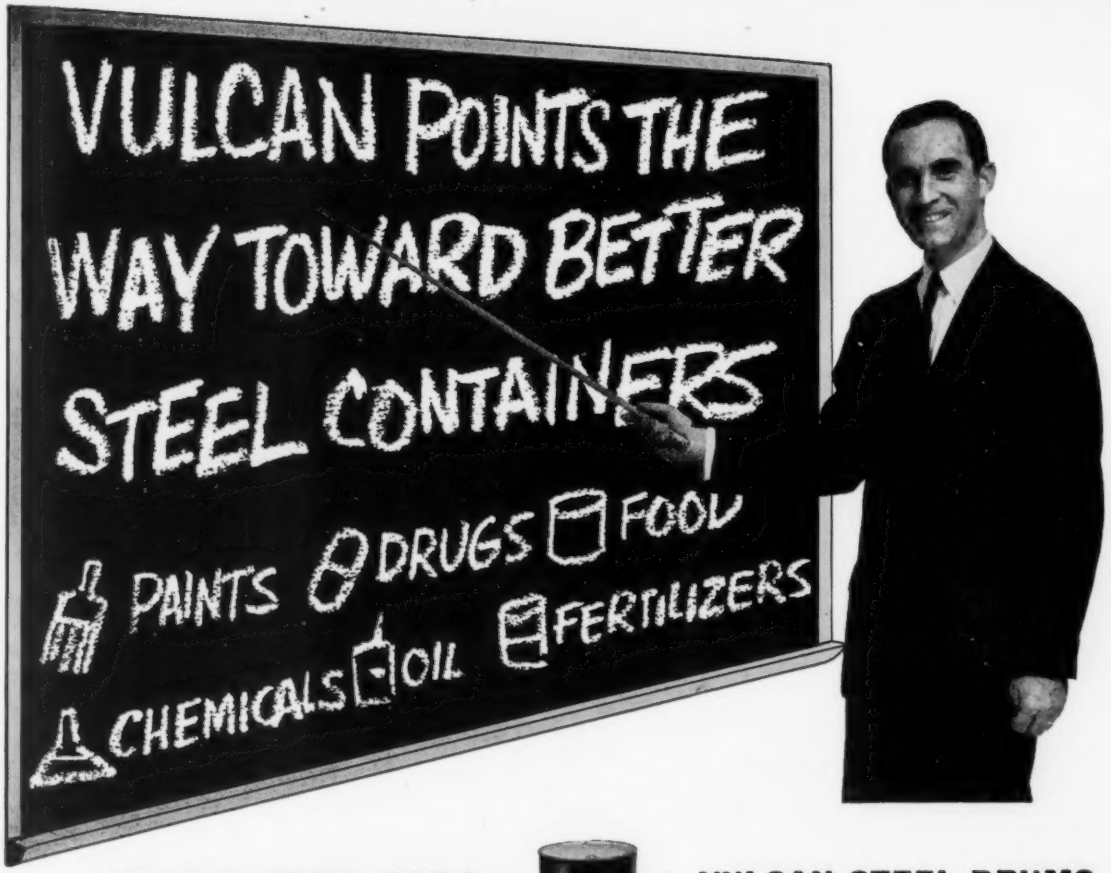
Re: Job specifications

Gentlemen:

I am interested in setting up a job specification for a packaging engineer. Do you have a job description for such an individual or can you recommend a source?

Walter Stogryn
Industrial Engineering Manager
Chesebrough-Pond's Inc.
Clinton, Conn.

We have sent you our suggestions under separate cover. We expect major packaging groups striving for professionalization (Packaging Institute and Society of Industrial Packaging and Materials Handling Engineers) to say more about this as time goes on.



VULCAN STEEL PAILS

The manufacturer needing a small package for his requirements can choose exactly the right size and type from the complete Vulcan line of steel pails. Vulcan offers a choice of gauges in both lug cover and closed head types in sizes ranging from one to fifteen gallons.

VULCAN STEEL DRUMS

These drums are the choice of leading manufacturers for the shipment and storage of liquids, plastics, crystals, semi-solids, and powders. All standard drum gauges are available . . . check with us regarding closures and accessories.

CHECK WITH VULCAN ON THESE TOO!

GREASE DRUMS . . . Available in both 120 and 100 pound capacities.

15 GALLON DRUMS . . . A new addition to the Vulcan line—available in open head and closed head types.

VULCAN

Vulcan offers real flexibility with a choice of linings, closures, accessories, and various painting and decorating services. Mail coupon for full information and the name of your Vulcan representative.

VULCAN CONTAINERS INC., Bellwood, Illinois

Gentlemen: I am interested in: PE-98

☐ Pails, in the following sizes_____

☐ Hi-Bake protective linings for (product)_____

☐ 55 gallon drums.

Please get this information to

Name_____

Company_____

Address_____

City_____ Zone____ State_____

For more information circle No. 206 on Reader Service Card

The PULSE / of packaging

Groups in the news: **American Management Association** assigned Franc C. Ricciardi (its vice president in charge of divisions) the job of running its packaging division. He will get AMA's other divisions (such as research and development, manufacturing, and marketing) active in packaging. "We have always considered packaging as an all-inclusive function from product development to delivery to the consumer," AMA president Lawrence A. Appley said in explaining to his staff how the new arrangement will stimulate packaging activities . . . PMMI has changed the name of its show to **"Packaging Machinery Manufacturers Institute Show of 1959,"** according to W. B. Bronander, Jr., Scandia Packaging Machinery Co., PMMI president. He said this change identifies the show with the institute and stresses its being a "packaging machinery" exposition . . . Politicos become aware of packaging: Chicago's mayor, Richard J. Daley, has proclaimed the week of October 12 "Packaging, Handling, and Shipping Week." October 13-16 **Society of Industrial Packaging and Materials Handling Engineers** holds its 13th annual packaging, handling, and shipping show, its technical short course, and its related packaging competition. **Packaging Institute** holds its annual forum October 13-15 in Chicago and joins SIPMHE in a joint program October 15th . . . The Rt. Hon. Vincent Massey, governor general of Canada, will open the **7th Canadian National Packaging Exposition** to be held in Toronto, November 4-6 . . . Reinforced plastics business is running about 10 per cent ahead of last year, and polyester resins (used in over 95 per cent of reinforced materials) and polyethylene are the only plastics resins whose production and sales through March were above the first quarter of 1957, according to the **Reinforced Plastics Division of the Society of the Plastics Industry, Inc.** . . .

Notes from across the seas: **Europak 1959** is the new name for the 5th Netherlands Packaging Exposition to be held in Amsterdam, April 21-28, 1959. Its sponsors say that current interest in prepackaging perishable foods prompts the holding of lectures and the showing of films and samples from all over the world during this show. Occupying 25,000 sq. yds., **Europak 1959** will show "the newest" packaging machines and materials . . . 1958 Oscars for packaging awards by **Instituto Italiano Imballaggio,** Padova, Italy, show the trends of packaging in that country. User packages so honored include a cake container of paperboard, with heat-sealable features equipped with a quick-opening device; a corrugated box structurally developed to deliver four reels of cloths in their full widths; a mailing container with round, not sharp, edges for cakes . . . **British Information Services** announce that Beasley, French & Co. Ltd. has a machine to print polyethylene in two colors at more than 450 ft/min. and without stopping or slowing down when joining rolls. . . .

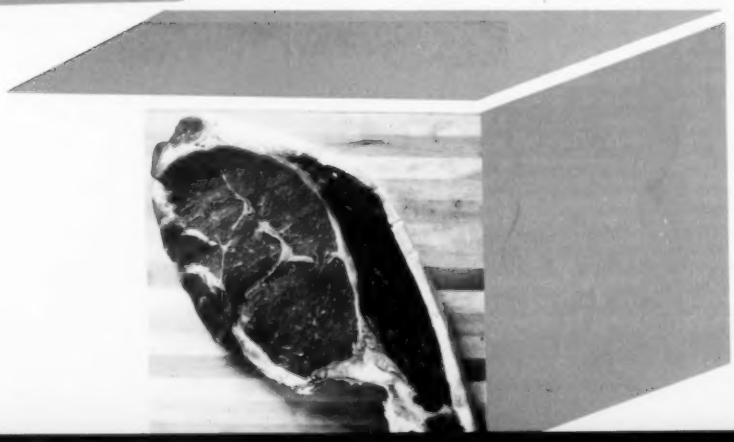
Trends to watch: **Hawaii Brewing Corp., Ltd.,** wholly-owned subsidiary of **Beatrice Foods Co.,** now uses aluminum, seamless cans made from flat slugs by impact cold extrusion methods. Cans are of the same type of quick-cooling aluminum used in refrigerator ice trays . . . Package usage soars: 1957 per capita consumption of packaging materials exceeded the 1956 figure of $53.80, nearly doubled the 1946 consumption of $32.13, and quadrupled the 1941 figure of $15.02, according to J. M. Heinen, Jr., manager of **Continental Can Co.'s** packaging engineering laboratories. He predicts more packages with built-in metering devices and measuring dispensing fitments, more cook-in package portion foods, and "a new look" in composite containers . . . Others are thinking along these lines, too. We hear that **Lever Bros.** plans to use a self-metering dispenser type carton for one of its products, and will form, fill, and seal it on high-speed automatic equipment.

More expansion for packaging: **Crown Zellerbach Corp.** and the **Hawaiian Sugar Planters Association** have concluded it is technically feasible to make paper from bagasse, and this fall will launch an expanded research and testing program to see if it is *commercially* feasible to use bagasse as a raw material for paper manufacture in the Hawaiian Islands. Bagasse is the fibrous residue of processed cane sugar. The experimenters look to a paper mill in Hawaii to use about 75,000 tons of it a year . . . **Armour and Co.'s** cushioning products division plans a large addition to its present plant facilities at Alliance, Ohio. We understand its new plant facilities will produce urethane foam cushioning material, thus broadening Armour's line of cushioning products . . . **Reynolds Metals Company's** new multimillion dollar office building at Richmond contains 1,235,000 lbs. of aluminum. They tell us it has 293,673 sq. ft. of usable floor space and dominates 160 acres of rolling Virginia countryside . . . **American Can Co.** recently launched a project to fill 3,000 aluminum squeeze tubes with liquid and semi-liquid foods for testing by Air Force pilots at extremely high altitudes. The new containers don't rely on gravity, are not affected by pressure differences inside and outside the helmet. A pilot squeezes the container, thus forcing food up the tube through the helmet—into his mouth. Each aluminum tube weighs 9 gms. . . . Adding specialized testing facilities to permit investigation of packages and materials in re government standards and specifications, **Container Laboratories, Inc.,** has expanded and relocated its Washington, D. C., division . . . **Sutherland Paper Co.** wants a bigger share of the Southeastern market: It is building a 175,000 sq. ft. converting plant at Albany, Ga., to manufacture paper cups, paper plates, prepackaging meat and produce trays, and other specialties . . . **National Tool Co.,** Cleveland, precision machine tool manufacturer, entered the plastics field by purchasing **Auto-Vac Co.,** Bridgeport, Conn., maker of machinery for forming sheet plastic . . . **Owens-Illinois'** multiwall bag plant at Valdosta, Ga., now has two new tubers and necessary supporting bottomers printing presses, thus giving a "substantial increase" to the plant's capacity . . . **A. Kimball Co.,** New York maker of tags, labels, and punch tag marking machines, subsidiary of **United Shoe Machinery Corp.,** now occupies a 55,000 sq. ft. building in Brooklyn . . . **Union Bag-Camp Paper Corp.** has a new product development laboratory in Hoboken. Besides a full range of testing equipment, this 32,000 sq. ft. building has a packaging machinery room of working models of automatic packaging machinery . . . To produce a general line of folding cartons for the Dallas/Ft. Worth market. **Container Corp. of America** announces a 195,000 sq. ft. installation in the 5,000 acre Dallas/Ft. Worth industrial district. It will house the folding carton operation C. C. of A. now has in Ft. Worth . . . **West Virginia Pulp & Paper Company** is setting up a new multiwall packaging laboratory at Charleston, S. C., site of its kraft mill producing multiwall grades of its Clupak stretchable paper. This company may put a multiwall bag producing plant at Charleston . . . **Ormet Corp.** has started initial alumina production at its Burnside, La., plant, which will produce about 345,000 tons of alumina a year. Ormet was formed two years ago by **Olin Mathieson Chemical Corp.** and **Revere Copper and Brass, Inc.,** to produce aluminum for both companies. Most of Olin Mathieson's share will go to **Olin Aluminum's** rolling mill, nearing completion near the Ormet plant . . . **Allied Chemical Corp.** hopes to lure a share of the 30,000,000 lb. thermosetting plastics closure market away from established urea and phenolic molding compounds. It now has a wood-filled urea plastic plant at Edgewater, N. J. . . . **Cochran Foil Corp.,** subsidiary of **The**

For more information circle No. 207 on Card

The package that sells cookies must instantly say tempting oven-freshness and crispness. This Dobeckmun Metalseal package does both for these Keebler Chocolate Circle Cookies by the vivid sharpness of the printing and the convincing quality of the protection it provides for a quality product.

Packages for performance...



Dobeckmun Metalseal is as good as it looks when it comes to keeping cookies, candies, crackers and frozen foods perfectly fresh! This is saying a lot because Metalseal can't be matched for instant eye appeal. There's a *bright, alert look* about Metalseal packages that comes directly from Dobeckmun's long experience with special laminations. And the *strong, lively quality* of Dobeckmun printing on this combination of aluminum foil and paper is a tremendous selling asset. To make the customer reach for *your* product and open it in perfect condition, consult Dobeckmun about box overwraps of Metalseal.

The Dobeckmun Company,
A Division of The Dow Chemical Company,
Cleveland 1, Ohio • Berkeley 10, California
Offices in most principal cities

Anaconda Co., bought from **Continental Can Co.** Continental's holdings in **Cochran-Continental Container Corp.** of Louisville. Cochran Foil and Continental Can formed Cochran-Continental two years ago to make rigid foil containers. This year Cochran Foil became an Anaconda subsidiary . . . **Pexco Bag Manufacturing Co.**, Toledo producer of plastic and cellophane bags, now has larger quarters for manufacturing . . .

Packaging dollars and cents: **Knox Glass Inc.**, reports April-June net sales of $9,757,332—same quarter of 1957 was $1,254,744 less. Net income for the quarter was $321,136, an increase of $109,385 over the same period last year . . . Second quarter figures show **National Starch Products, Inc.**, hiked its net sales 4 per cent and net profits 8.5 per cent over the same period last year. Sale of new research-developed products offset decreases due to lessened demand from some industries, National said . . . Business uncertainties and unseasonably cool weather which retarded sales of ice cream containers and beverage carriers hit **Federal Paperboard Co., Inc.** Its net income for the first 24 weeks of 1958 was $1,496,000, 21 per cent less than the $1,889,000 income for the same period of 1957. Sales for the 24-week period were $26,019,000, or 5 per cent below those of the same period of 1957 . . . **Continental Can Co.'s** net sales for the six-month period ending June 30 were $498,702,000, as against $492,617,000 for the same period last year. Earnings for the six-month period, however, were $34,118,000 compared to $40,238,000 last year . . . **H. J. Heinz Company** reported the third highest net income per share in company history for its fiscal year (ended April 30). Its net sales hit a new record of $293,811,817 —5 per cent more than the previous record of $278,852,384 established last year. But net income was down 12-1/4 per cent to $9,336,913 from the $10,626,252 earned in fiscal 1957 . . . **St. Regis Paper Co.** reports net sales for the first six months of 1958 of $172,359,165, compared to $180,919,810 for the first half of 1957. Consolidated net income amounted to $7,772,609, compared to $10,402,779 for the same period last year . . . For the six months ended June 30, **Container Corp. of America** reports net earnings of $6,950,000, as compared to $7,882,000 for the first half of 1957. Unusual expenses in starting-up operations of new properties (especially at the Brewton bleached sulfate paperboard mill) bit into Containers's earnings . . .

What people are doing: **Lawrence H. Zahn**, manager, methods and package development division, CIBA Pharmaceutical Products, Inc., is now chairman of the production and engineering section of Pharmaceutical Manufacturers Association . . . **S. E. Carroll** is new general manager of Swift & Co.'s adhesives products department . . . **Warren N. Gould**, now manages Swift's adhesives department at Los Angeles . . . Mobay Chemical Company has named **Dean Tyler** manager, foam chemical sales; **Donald H. Bryan** succeeds Mr. Tyler as manager of Mobay's Eastern sales district, and **Harold D. Ulmer** takes Mr. Bryan's place as West Coast sales representative . . . **Louis R. Lawson, Jr.**, is now Eastern district manager of kraft paper sales for West Virginia Pulp & Paper Co. . . . new director of engineering for Clupak, Inc., is **Harold O. Balough** . . . H. B. Fuller Co reports that **Thomas C. Fetterman** is now manager of technical service in the coatings department . . . Container Corp. of America has named **Everett G. Temple** general manager of its Eastern folding carton division, and **David C. Whitehouse** general manager of its Boston folding carton plant . . . **James E. Jones** is now secretary of American Paper & Pulp Association's industrial relations committee . . . **Roy Ferry** heads the new sales technical and service department of Valve Corp. of America . . . New packaging engineers of National Metal Edge Box Co. include **William A. Rice** (New England) and **Fred L. Knapp** (Connecticut) . . . **William P. White, Jr.**, is now general manager of package and engineering for Continental Can Company . . . Diamond Gardner Corporation has named **James H. Thompson** development analysis . . . **Francis T. Quinn** is the new manager of package development at White Laboratories, Inc. . . . The Dobeckmun Company has named **R. S. Jones** general sales manager; **R. A. Hickman**, manager of market planning; **B. P. Kinter**, Southwestern regional manager; **J. E. Powers**, Northwestern regional manager; **R. A. Stump**, central regional manager, and **D. F. deRoode** and **J. T. Kolenik** district sales managers in Atlanta and Charlotte, N. C. . . . Cochran Foil Corporation has named **Carl W. Huflage** vice president . . . Standard Packaging Corp. has appointed **Charles B. Kinman**, product sales manager, and **Robert J. Kieckhefer** plant manager of its Chicago closure operation. **Joseph A. d'Avi** is now assistant to the general sales manager of Standard Packaging . . . **Wallace R. Rhine** has joined the engineering staff of Doughboy Industries mechanical division . . . Crown Cork & Seal Co., Inc., has named **William D. Wallace** director of manufacturing . . . new manager of beverage-packers can sales for Crown Cork is **Arthur Burk Kraleman**, and **Jack P. Jordan** is the company's new consolidated district sales manager in New York . . . **Joseph E. Lang** is now district sales manager at the Hoboken plant of Hinde & Dauch . . . **Jett D. Thomas** is now sales supervisor (frozen food packaging) of the New York regional office of Western Waxide Div., Crown Zellerbach Corp. . . . **Walter Thompson** is now assistant to the vice president and chief of manufacturing operations of Milprint, Inc., headquartering at Downingtown, Pa. . . . **Carl Jensen** is now sales administrator of Milprint's Eastern division . . . American Can Co.. has named **Raymond J. Odiorne** assistant to the Eastern area manager of manufacture.

(End)

PRINT YOUR OWN BUNDLE WRAPS with a ROLAPRINTER® IMPRINTING ATTACHMENT

Save money on every package!

- Easily attached to any wrapping, bundling or bag-making machine.
- Fully automatic—prints complete descriptive copy in any color—*accurately* registered on 1 to 5 sides of wrapper as paper feeds from roll into wrapping section of machine.
- No skill needed to get high quality printing results, make copy changes in minutes.
- Print what you need as you need it right on present packaging equipment. Use low-cost unprinted paper—eliminate waste—reduce inventories.
- Avoid interruption of production schedules for lack of printed stock when required.

First and foremost in automatic production-line CODING, MARKING and IMPRINTING machines

Gottscho

Write today for full details

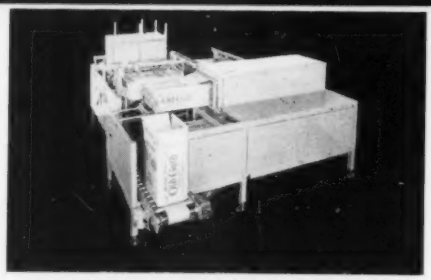
GOTTSCHO, Dept. S
HILLSIDE 5, N. J.

In Canada: Richardson Agencies, Ltd.
Toronto and Montreal

For more information circle No. 208 on Reader Service Card

Circle No. 209 on Card

Does your case-packaging "date" you?



FEEDER-FORMER-POSITIONER-LOADER-UPENDER

This machine in operation at the P. Lorillard Co. automatically end-loads regular and kingsize cartons of Old Golds at the rate of 400 cartons per minute (60 cartons per case in a 2x5x6 pattern) or nearly 5 million smokes an hour. A high-speed machine which forms cases, positions and loads fully-automatically can be the answer to your packaging line. Write us for consultation or for additional information and prices.

J. L. FERGUSON CO. **Joliet 1, Ill.**

New York, Chicago, Cleveland, Boston, Tampa, Baltimore, Portland, Denver, Los Angeles, San Francisco, Seattle, New Orleans, Louisville, Kansas City and All Principal Canadian Cities.

PACKOMATIC machines include the Bale Sealer — Case Sealers — Opener-Loaders — Case Imprinters — Tele scoping Volumetric Filler — Packer-Gluers. Units available, semi-automatic or fully-automatic depending on your needs.

Packomatic

T.M. Reg. U. S. Pat. Off.

equipment feeds, forms, positions, loads, seals, and imprints shipping containers automatically

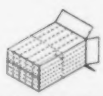
From the time the magazine is stacked with "knocked-down" containers until they are loaded, sealed and imprinted, ready for shipment—not a human hand is required. Here's automatic, foolproof equipment Custom-Engineered to do the whole job—or any part of it for less—and at a speed to match any production line. End-loading techniques save up to 28% on paper board costs alone. Labor savings are obvious. And, Packomatic Custom-Engineered equipment can do the trick for virtually any product; witness the case loading patterns below. Whatever your requirements, whatever your budget, there's a Packomatic machine to cut costs and boost production in your plant.

Six 5-qt. cans or gallon cans in 20⅛" x 13⅜" x 9 13/16" case and 20¼" x 13¾" x 8¼" case

Twelve 46 oz. cans in 21" x 13" x 7⅞" case

Twenty-four cartons in 12½" x 10⅝" x 8½" case

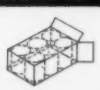
Eighteen 7 & 8 oz. cartons in 20" x 14⅛" x 8⅝" case



Sixty cigarette cartons King Size: 17⅞" x 11½" x 22" Regular: 14 13/16" x 11½" x 22"

TYPICAL CASE LOADING PATTERNS FOR CANS AND CARTONS

Twenty-four 12 oz. cans in 16⅜" x 10 15/16" x 5 5/16" case



Six No. 10 cans in 22 1/16" x 17⅜" x 7⅛" case

Thirty 1 lb. cartons in 16½" x 10 5/16" x 7¼" case

Twenty-four cartons in 19½" x 10⅞" x 7" case

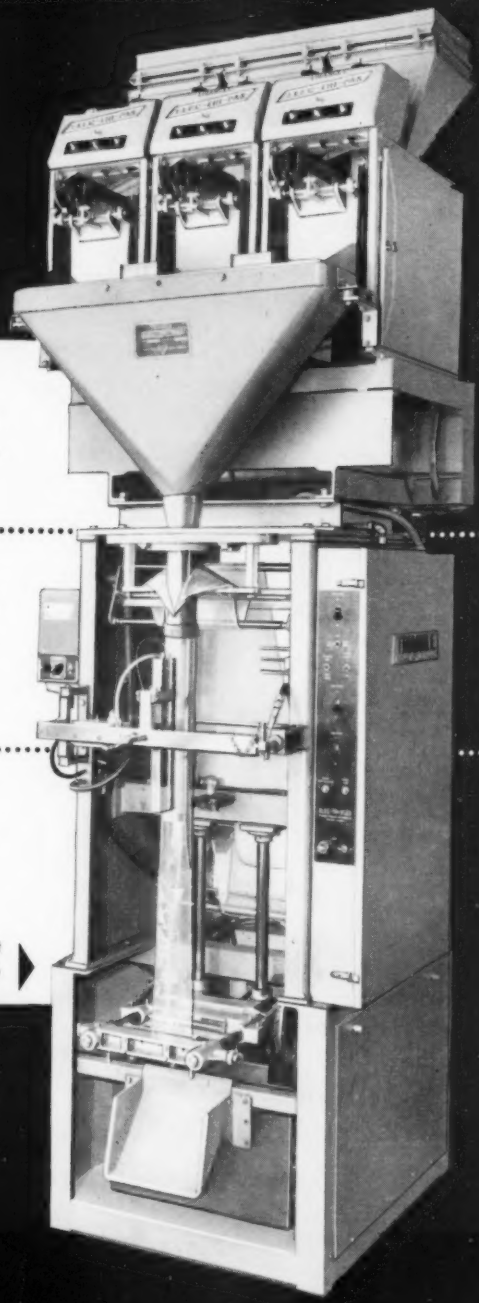
Forty-eight cartons in 22¾" x 23½" x 15⅞" case

TRIANGLE'S NEW AUTOMATIC BAG MAKER, FILLER AND SEALER

NEW ACCURACY

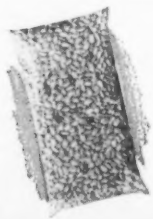
NEW FLEXIBILITY

EXTRA HIGH SPEED



55 to 60 3-ounce packages per minute:—coffee, pouch paper.

50 to 55 8-ounce bags per minute:—elbow macaroni, cellophane.



40 to 45 1-pound bags per minute:—pinto beans, polyethylene.

The L-2 can be equipped with net weight scales (as shown) volumetric filling head, or for hand loading.

See *why* Triangle's new design means: (*1*) Higher Speeds (*2*) Simplicity of Operation (*3*) Fast, easy changeover for different bag sizes, materials and products.

Send for three dimensional color slides and viewer—study the L-2 at your leisure—no obligation, we pay the postage both ways.

FILL IN THE COUPON—MAIL IT TODAY

YES MR. TRIANGLE—I would like to see the 3-D color slides of the Automatic Bag Maker, Filler and Sealer. Send it to me Postage Paid, Both Ways.

Name_____

Company_____

Address_____

City_____ Zone____ State_____

Just clip to your letterhead and mail to us at:

6631 W. Diversey Ave., Chicago 35, Ill.

TRIANGLE

TRIANGLE PACKAGE MACHINERY CO.

Chicago 35, Illinois

Plastiatrics

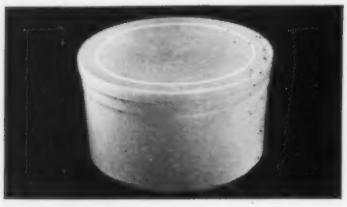
DOW'S CLINICAL APPROACH TO HEALTHY PLASTICS APPLICATION

in packaging

MORE AND MORE MARKETS SOLD ON FUNCTIONAL ADVANTAGES OF STYRON PLASTIC PACKAGING

No one knows better than the package engineer that function is of prime importance when it comes to the design, fabrication and end use of a package. Today's package must be an all-star performer in a highly competitive market—it must protect, display and *sell*. And it must be easily and economically fabricated to meet specific product requirements.

The Styron® family of polystyrenes offers unlimited opportunities for creating completely functional modern packages. With a constantly widening range of formulations . . . color styling . . . and technical assistance unmatched in the field . . . it is easy to see why Styron is fast replacing conventional packaging materials in so many different markets.

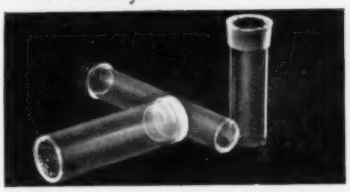


Ice Cream Containers

Styron gives the ice cream industry a new package that combines advantages never before possible. Containers made of Styron are dimensionally stable, rigid, won't absorb water. Their tight-fitting lids, easy to open and reclose, offer better protection and more convenient use. And they give ice cream sales-making product visibility for the first time. They can be used on conventional filling equipment. Styron plastic gives ice cream a premium package *without* premium price.

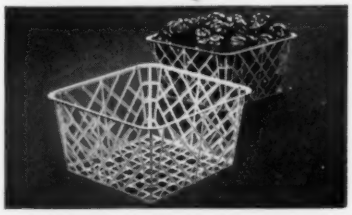
Vials

Vials of all kinds made of Styron offer functional advantages that make them ideal packages for a wide variety of products. They can be made to exact dimensions, assuring tight-fitting closures. They're lightweight, tough, won't shatter. They're low in cost and can be treated by a low-cost process to make inexpensive gummed labels adhere securely.



Closures

Variety is unlimited in plastic closures. *Snap-on* closures, for excellent product visibility, form a good seal yet are easy to remove and replace. *"Fitments"*, such as dispenser spouts and shaker tops, add function to the closure. *Screw Caps* add a quality appearance in a wide range of colors and designs. Threads do not show on outside. And faster fabrication makes plastic caps competitive in price with conventional caps. *Plastic End Caps* for composite cans eliminate rusting.



Baskets For Produce

Lightweight, colorful and stain-proof, Styron plastic baskets give small fruits and vegetables sales-appeal they never had before. Plastic baskets won't support mold growth and their open latticework design provides important ventilation and product visibility from all sides.

Meat Tray And Hot Drink Cup

Vacuum forming on continuous high-speed equipment is opening up many new fields to plastic packaging. The tray for in-store meat packaging and the cup for hot drink dispensing machines are two of the newest. They do not absorb water, won't stain or become soggy and flimsy. They offer new appetite appeal where it is important . . . and needed.

Regardless of the materials being used now, the package engineer cannot afford to overlook the advantages available in the Styron family of polystyrenes. For complete technical data, see the Dow man in your area, or write to THE DOW CHEMICAL CO., Plastics Packaging Service 1565N, Midland, Mich.

AMERICA'S FIRST FAMILY OF POLYSTYRENES

GENERAL PURPOSE
- STYRON ®666
- STYRON 666M (Easy Flow)
- STYRON 689 (Easy Flow)

MEDIUM IMPACT
- STYRON 330 (Easy Flow—Translucent)
- STYRON 777

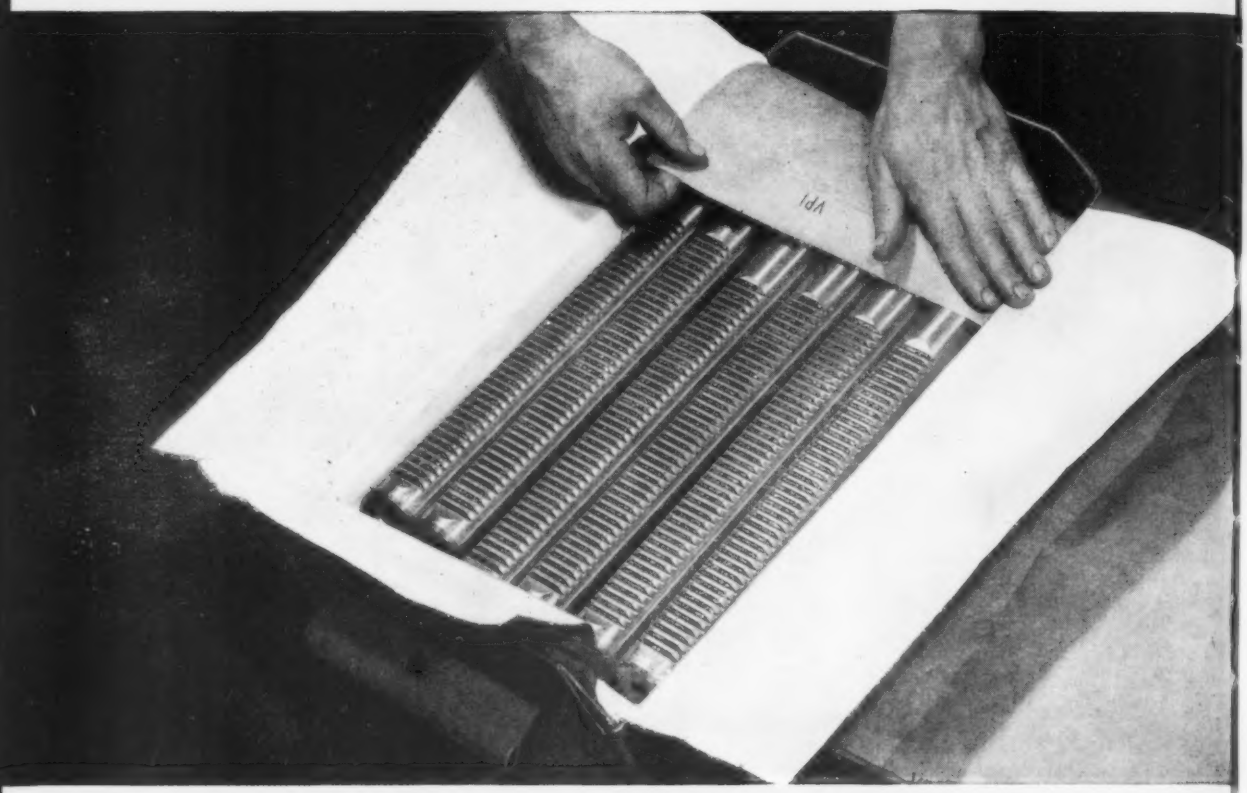
HIGH IMPACT
- STYRON 475
- STYRON 475M (Easy Flow)
- STYRON 440 (Heat Resistant)
- STYRON 440M (Easy Flow)
- STYRON 480 (Extra-High Impact)

HEAT RESISTANT
- STYRON 683
- STYRON 700

YOU CAN DEPEND ON DOW

The Ludlow Line Protects Your Products Better

8-year test proves vapor-from-paper stops rust···saves money



On January 6, 1950, a leading metals company encased a piece of mild steel in a new kind of protective packaging. It was Ludlow's VPI* Wrap — a coated paper that gives off a rust-preventive vapor. On January 15, 1958 — *eight years later* — the steel was unwrapped and examined. Here is the company's report on its condition:

"*The condition of the specimen is excellent. There is no rust or tarnish appearance and the bright, shiny finish remains.*"

And the test was conducted in a corrosive, salt water atmosphere! Because VPI *is* so effective . . . and because it costs less than messy grease or slushing oils, the VPI packaging method has gained widespread acceptance for protecting metal products during storage (see picture) and in shipment. Send for booklet.

VPI Wrap is typical of Ludlow's job-tailored packaging products. Look to Ludlow for *greater protection, lower costs and faster packaging.*

*Ⓡ Vapor rust preventive — Conforms to U. S. Government's Spec. MIL P 3420

Circle No. 212 on Card

LUDLOW PAPERS, INC.

NEEDHAM HEIGHTS 94, MASS.

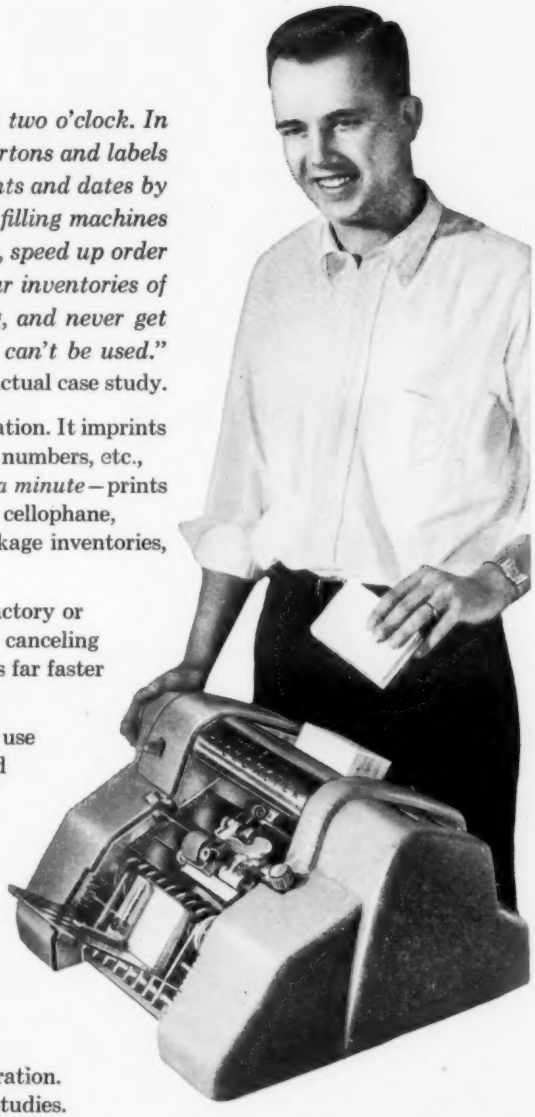
Sales Offices in principal cities

VPI-COATED PAPERS · GREASEPROOF PAPERS · WATERPROOF PAPERS · POLY-COATED PAPERS · GUMMED TAPES · FEDERAL SPEC. PAPERS · LABEL & SPECIALITY PAPERS · PLASTICS

"We imprint 'em

. . . as we pack 'em!"

"I usually get tomorrow's production schedules by two o'clock. In less than an hour I have ready all the small cartons and labels needed for the next day – imprinted with codes, weights and dates by our Tickometer. They're waiting for the girls and filling machines first thing in the morning – save down time and lags, speed up order filling and shipping. We've been able to cut our inventories of pre-printed materials by 85%, save on printing, and never get stuck with printed packages and labels that can't be used."
– From an actual case study.



• A Tickometer is invaluable in any packaging operation. It imprints codes, weights, expiration dates, colors, sizes, serial numbers, etc., on small flat cartons or labels at speeds up to 1,000 *a minute* – prints on most paper weights and finishes, light card, foil, cellophane, plastics. It helps avoid production delays, cuts package inventories, reduces printing costs.

• It also saves time and work in other areas of a factory or office in marking, stamping, endorsing, dating and canceling forms, checks, coupons, tags, tickets, cards, etc. It is far faster than any manual worker.

• The Tickometer also *counts* – is so accurate banks use it to count currency! It can be set for predetermined quantities, gives partial amounts or totals, can be equipped for consecutive numbering. It supplies figures faster, makes records available earlier.

• It gives exact registration on an impression surface 2 3/16 by 7/8 inches, handles sizes up to 15 by 15 inches, depending on the model. Feeds and stacks automatically, is easy to operate, can be used by anybody. Rented or sold, with PB service always nearby, from 302 points, coast to coast.

• Ask the nearest Pitney-Bowes office for a demonstration. Or send coupon for free illustrated booklet and case studies.

Pitney-Bowes

TICKOMETER

Imprinting & Counting Machine

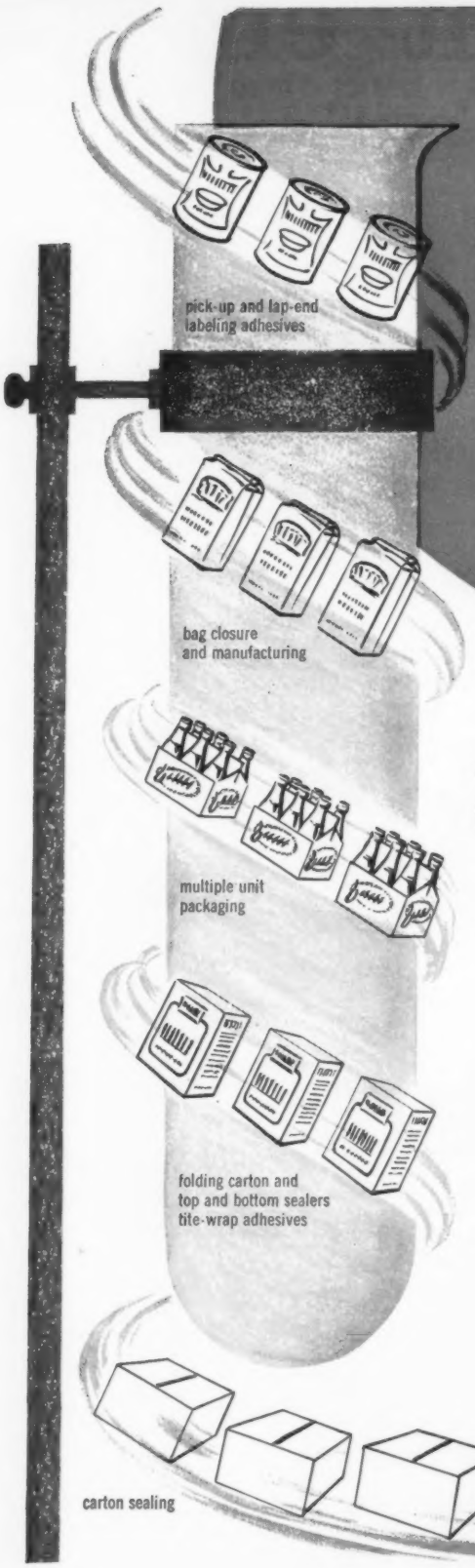
Made by the originator of the postage meter . . . offices in 107 cities in U. S. and Canada.

PITNEY-BOWES, Inc.
7742 Walnut Street,
Stamford, Conn.

Send free Tickometer booklet and case studies

*Name*_____

*Address*_____


pick-up and lap-end labeling adhesives
bag closure and manufacturing
multiple unit packaging
folding carton and top and bottom sealers tite-wrap adhesives
carton sealing

SWIFT'S HIGHSPEED RESIN ADHESIVES

Developed to give you more of everything you need to meet today's production requirements

- Good moisture and heat resistance—helps your package withstand the rigors of varying temperature and humidity conditions.
- High speed formulations—permit higher operating speeds to reduce unit costs.
- Cleaner machining—requires less adhesive, reduces rejects and makes clean-up easier.
- Good appearance—makes a better looking package . . . translucent glue line is neat and clean.
- Versatile—for use on a wide variety of packaging materials, under a wider range of temperature and humidity conditions.

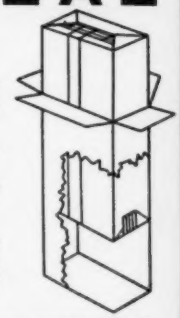
A trial on your own equipment under your own operating conditions is the best proof of performance. Ask your near-by Swift adhesive specialist for details, or write SWIFT & COMPANY, Adhesive Products Department, Chicago 9, Illinois.

Swift
103rd YEAR

To Serve Your Industry Better

A-46

PNEUMATIC'S NEW FIN-SEAL PACKAGE



- Provides protection of heat-sealed envelope plus rigidity of carton.
- May be filled by weighing or volumetric methods — to any height up to 98% of capacity.
- Inner bag made with face-to-face fusing of currently used thermoplastic coated materials.
- Entire package produced on Pneumatic Double Package Maker combinations.

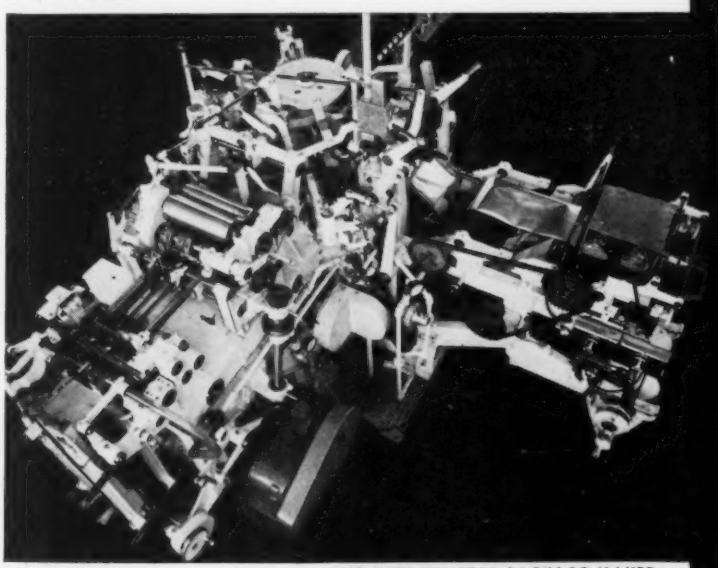
A container which has proved itself highly effective under most demanding conditions, the Fin-Seal package offers moisture protection within full tested range of lining materials.

The symmetrically made inner bag is formed with heat-sealed "fins", centrally located on one side, the bottom, and the top. Top and bottom fins are crimped under pressure with our unique plunger-action device for hermetically sealing folded side seam ends. Vertical or body seal on inner bag is in dead center to allow for mechanical spreading of lining top, during closure operations, without interfering with vertical seal.

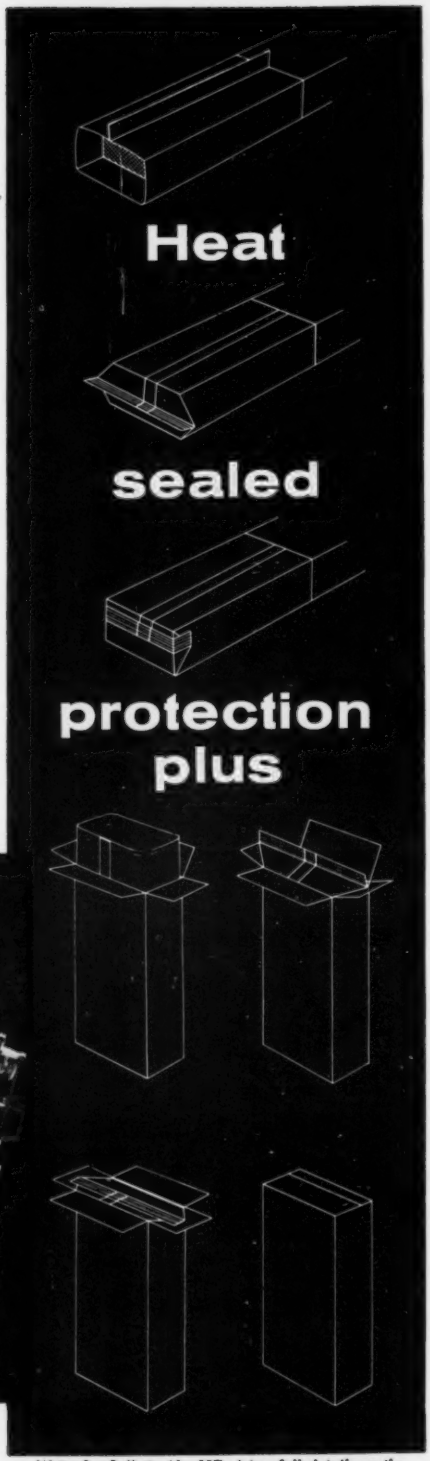
This package consisting of a heat sealed protective packet "glove-tight" within a carton provides a means of shelf display and space for printed messages including brand name, recipes, etc. It is ideal for such products as gelatine and pudding desserts, dehydrated soups, dry cereals, pie crust mix, cake mixes and brown or confectionery sugar.

Pneumatic's Fin-Seal Package Maker machine handles all currently available heat seal coated lining materials. If desired, however, the unit may be furnished to run uncoated stocks. With this method a glue pattern is stenciled for side seam, top and bottom "fins" of the inner bag. Operations beyond this point are the same as when thermoplastic coated stock is used.

PNEUMATIC SCALE CORP., LTD., 77 Newport Ave., Quincy 71, Mass. *Also New York; Chicago; Dallas; Seattle; San Francisco; Los Angeles; London, England. Canadian Division: Delamere & Williams Company, Ltd., Toronto.*



THE NEW FIN-SEAL PACKAGE MAKER



Write for Bulletin No. 137 giving full details on the new Fin-Seal package.

PNEUMATIC

Packaging and Bottling Equipment

For more information circle No. 215 on Reader Service Card

KIRSCH
PROBLEM: Machine package curtain rod hardware in a protective pouch complete with printed trade-mark identity and installation instructions.
SOLUTION: Thilco clear polethylene coated M. F. Kraft permits high speed machine sealing — provides protection from dirt, corrosion and loss of parts.

THILCO POLY-KRAFT HEAT SEALABLE POUCH PAPERS

offer "field-tested" proof of packaging superiority for protection and automatic machine forming

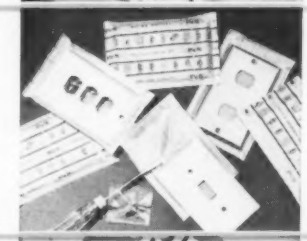
THILCO'S diversified range of Poly-Coated paper combinations solve these packaging problems

PROBLEM: Package dry soup mix in sales appealing print labeled pouch with positive protection from moisture absorption.

SOLUTION: Thilco white M. G. Kraft is foil laminated one side and clear polyethylene coated on other side for required moisture barrier. Eye catching 4-color label decoration is Thilco flexo-printed on gleaming foil side.

PROBLEM: Protect plastic switch plates from dirt and moisture — identify product, and permit consumer selection without opening package.

SOLUTION: Thilco trade-mark decorated M. G. Kraft with scuff-proof, varnished overlay on one side and clear polyethylene coating on other provides protection and medium for heat sealing to "see-thru" cellophane that forms pouch.



PROBLEM: Provide a moisture barrier pouch packet to prevent "caking" of hygroscopic dye granules.

SOLUTION: Thilco polyethylene one side coated M. F. Kraft furnishes the ideal moisture barrier combination. Thilco flexo-printing provides the all-important trademark identification.

THILCO
Functional Papers
THILMANY PULP & PAPER COMPANY
KAUKAUNA • WISCONSIN

NEW YORK • DETROIT • CHICAGO • BOSTON • CINCINNATI

Get this free "tell-all" kit of samples

Complete, manual style kit contains sample grades of Pouch Paper combinations and helpful information guide on types, sizes and styles of pouches produced on automatic packaging machines.

Factors affecting packaging line speed

A trend to increasingly higher packaging line speeds is a dominant characteristic of today's packaging operations. However, the highest speed is not always the best speed. Mr. Kessler suggests five areas deserving careful attention when deciding whether to operate at top speed or some lower speed; (1) Equipment factors limiting over-all line speed; (2) unavoidable or fixed downtime; (3) non-recurring or theoretically avoidable downtime; (4) special requirements any top speed operation must meet, and (5) downtime reports as tools of evaluation. His views reflect broad experience in a field where volume production is the rule rather than the exception. They deserve careful evaluation by anyone who is weighing the pro's and con's of high speed.

By Fred P. Kessler,
Engineering Manager,
Miller Brewing Company,
Milwaukee

When seeking to step up your packaging line speed, you are apt to encounter a number of obstacles suggesting very strongly that highest obtainable speed may not be as desirable as it appears at first glance. Our experience prompts us to suggest that those wishing summarily to install the fastest equipment available thoroughly analyze their plans. You must look carefully at its effect on your line as a whole. Existing units of equipment may limit the speed of, say, filling and closing.

Unavoidable downtime such as crown changes may keep down the efficiency added to a line by installation of a high-speed piece of equipment. New sources of non-recurring downtime may start appearing. Problems not anticipated previously will arise, such as a need for better training of the maintenance crew.

Admittedly, our viewpoint is colored by our own circumstances. We ship into all 48 states and for export from one single plant. Conceivably, factors limiting bottle and car line speeds in a brewery may not apply to plants engaged in the manufacture of many other products. However, an interest in stimulating the interchange of ideas from the different fields of packaging moves us to offer our views:

1. LIMITING FACTORS

Often a production process of some kind limits packaging line speed. Managers and engineers should be alert for such factors.

In our plant, the established policy of only highest quality in every phase of production requires a certain number of pasteurizing units for every package we handle. This, combined with workable water temperatures, governs the speed through the pasteurizer. Since the pasteurizer represents the bulkiest and most expensive component of the line, it paces all previous or succeeding operations of that line.

At the time of installation of our fastest line, the 60-spout filler was the largest to be had, handling up to 415 12-oz. bottles/min. By now, 72-spout units, filling up to 530 of these bottles/min., are operating in other plants.

Four years ago we were proud of installing the widest and biggest soakers (32 bottles wide with 10 soaking compartments). Today, 40 wide soakers are commonplace.

The interdependence of the various units of a line stands out unmistakably: Often an advance in one phase of the process cannot be fully utilized if other phases have not kept pace. (*Turn Page*)

Handling Of "Returneds"

Returned reusable material slows up lines. Other limiting factors arise from the nature of the materials handled. In operations such as ours where returnable bottles and cases are used in large volume, their condition upon arrival at our plant may have an important bearing on line speed. Cases with extensive damage, unsuitable for automatic uncasing, must be pulled out of the line.

A shipment containing a large number of them will starve a line. So will a large number of "foreign" bottles, which must be culled and replaced with bottles of our own type, (so-called flint select type), as automatic uncasing works best when the full packing pattern is presented. Voids would cause misalignment of bottles and might keep the bottle grippers from entering. The operator must remove missed bottles by hand.

Floor space limited. Our lines run on specific orders. We have a minimum of floor space for storing the finished product. Company policy is very definite regarding packaged beer. Routines have been established for getting it into distribution channels as quickly as possible after packaging. This absence of storage space limits in varying degrees the effectiveness of lines handling special packages, popular only in certain areas of the country.

Underlying all this is our belief in setting reasonable goals. With a certain type of equipment, a line speed of 240 units/min. may offer definite advantages over speed of 300 units/min.

At this time, 550 cans or 400 bottles per minute appear to us to be reasonably workable speeds. Even with present equipment, higher line speeds are attainable, but we question their desirability from an over-all point of view.

2. FIXED DOWNTIME

In support of our recommendations concerning speed, let's look at fixed downtime.

Bottle crowns and can lids represent a good example. The 48 states require 22 different tax crowns or can lids. As a result, the same beer going to these 22 different states requires different bottle crowns and can lids. Suppose it takes 3 minutes per crown change and the production set-up for the line requires 18 changes in a two-shift operation. The time loss would be 54 minutes. During each 8-hour (480 min.) shift there is a complete 30-minute shutdown for lunch. Therefore, 54 minutes out of 900 represent an efficiency loss of 6 per cent.

Differences in labels. Similar problems are posed by label requirements. A total of nine varieties will cover all the different requirements of the several states. Small as these differences may be, (some states require the label to indicate alcoholic content as "4.5%" while others insist on this statement to read "4.5 per centum"), they merely add another delaying factor to our production lines.

3. AVOIDABLE DOWNTIME

A major aspect of this problem of speed is that of theoretically avoidable downtime. Explosions at the filler due to bottle defects fall into this category. A simple clean-up might insure an absence of glass particles, but our policy demands we go further. We remove gaskets also from the adjoining valve on both sides and replace them with other ones only after thorough rinsing of all three valves. This practice adds minutes to the downtime, cutting efficiency even more.

Inexperienced employees. In our business, summer naturally is the peak season. For several months we have with us help quite unfamiliar with the machines on which they work. We appreciate their availability and have to put up with their shortcomings, especially on the less desirable shifts which their lack of seniority forces them to accept. Even with a good training program, most of them are not able to develop the efficiency of the year-around worker and a certain amount of downtime cannot be avoided.

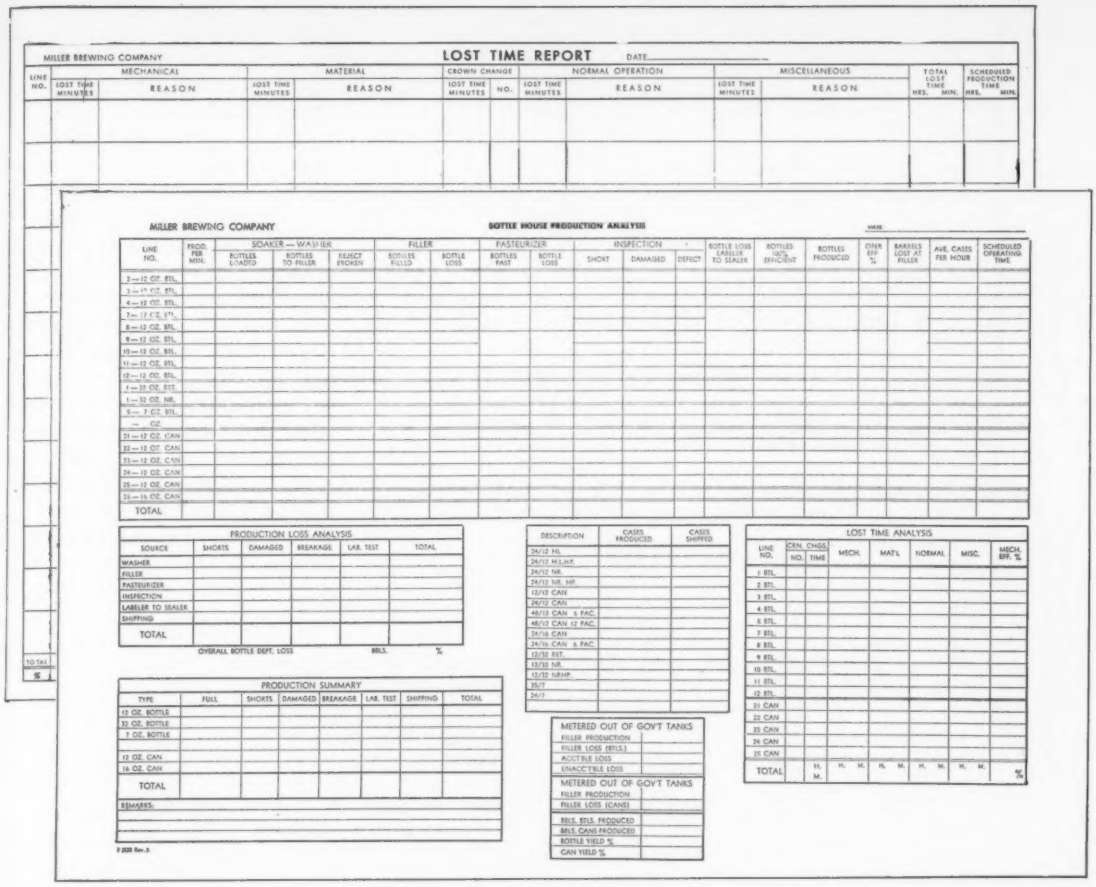
4. REQUIREMENTS

All of this leads us to review requirements for a high speed line. With this go a number of arguments in favor of running at less than top speed. Order size may be the major factor retarding the use of higher speed.

Our own experience with beer is probably no different than that of many companies manufacturing other products with small variations in make-up or packaging (such as private brands). Frequent orders consisting of various but relatively small runs simply require too many changeovers to justify high speed. *Any marked increase in line speed must be accompanied by an equal increase in order size to reap the benefits afforded by this higher speed.*

Anticipated gains from raising machinery speeds from medium to high will not materialize if individual runs stay small, requiring then even more frequent changeovers. If you want to fill diversified orders off the line without extensive warehouse facilities, scheduling costs are bound to go higher. Scheduling is an important factor in determining line speeds. At higher speeds, runs must be worked out with more detail and more care to handle problems arising from more frequent runs. Poor scheduling is simply expensive.

Fred P. Kessler is a graduate of Technical University, Darmstadt, Germany, with an M.S. degree in mechanical engineering. Before joining Miller in 1951, Mr. Kessler had 20 years experience in the bottling and canning field, having been design engineer associated with George J. Meyer Manufacturing Company, Heil Company, and Michael Yundt Company. Since 1955 he has been Miller's engineering manager.



MILLER BREWING COMPANY

LOST TIME REPORT DATE

LINE NO.	MECHANICAL: LOST TIME MINUTES	MECHANICAL: REASON	MATERIAL: LOST TIME MINUTES	MATERIAL: REASON	CROWN CHANGE: LOST TIME MINUTES	CROWN CHANGE: NO.	NORMAL OPERATION: LOST TIME MINUTES	NORMAL OPERATION: REASON	MISCELLANEOUS: LOST TIME MINUTES	MISCELLANEOUS: REASON	TOTAL LOST TIME HRS.	TOTAL LOST TIME MIN.	SCHEDULED PRODUCTION TIME HRS.	SCHEDULED PRODUCTION TIME MIN.

MILLER BREWING COMPANY — BOTTLE HOUSE PRODUCTION ANALYSIS — DATE

LINE NO.	PROD. PER MIN.	SOAKER — WASHER: BOTTLES LOADED	SOAKER — WASHER: BOTTLES TO FILLER	SOAKER — WASHER: REJECT BROKEN	FILLER: BOTTLES FILLED	FILLER: BOTTLE LOSS	PASTEURIZER: BOTTLES PAST	PASTEURIZER: BOTTLE LOSS	INSPECTION: SHORT	INSPECTION: DAMAGED	INSPECTION: DEFECT	BOTTLE LOSS LABELER TO SEALER	BOTTLES NOT EFFICIENT	BOTTLES PRODUCED	OVER EFF. %	BARRELS LOST AT FILLER	AVE. CASES PER HOUR	SCHEDULED OPERATING TIME
2—12 OZ. BTL.																		
3—12 OZ. BTL.																		
4—12 OZ. BTL.																		
7—12 OZ. BTL.																		
8—12 OZ. BTL.																		
9—12 OZ. BTL.																		
10—12 OZ. BTL.																		
11—12 OZ. BTL.																		
12—12 OZ. BTL.																		
1—32 OZ. BTL.																		
1—32 OZ. NR.																		
5— 7 OZ. BTL.																		
— OZ.																		
31—12 OZ. CAN																		
32—12 OZ. CAN																		
33—12 OZ. CAN																		
34—12 OZ. CAN																		
35—16 OZ. CAN																		
TOTAL																		

PRODUCTION LOSS ANALYSIS

SOURCE	SHORTS	DAMAGED	BREAKAGE	LAB. TEST	TOTAL
WASHER					
FILLER					
PASTEURIZER					
INSPECTION					
LABELER TO SEALER					
SHIPPING					
TOTAL					

OVERALL BOTTLE DEPT. LOSS BBLS. %

PRODUCTION SUMMARY

TYPE	FULL	SHORTS	DAMAGED	BREAKAGE	LAB. TEST	SHIPPING	TOTAL
12 OZ. BOTTLE							
32 OZ. BOTTLE							
7 OZ. BOTTLE							
12 OZ. CAN							
16 OZ. CAN							
TOTAL							

REMARKS:

F 2220 Rev. 3

DESCRIPTION	CASES PRODUCED	CASES SHIPPED
24/12 NL		
24/12 M.L.N.R.		
24/12 NR.		
24/12 NR. MP.		
12/12 CAN		
24/12 CAN		
48/12 CAN 6 PAC.		
48/12 CAN 12 PAC.		
24/16 CAN		
24/16 CAN 6 PAC.		
12/32 RET.		
12/32 NR.		
12/32 NRMP.		
35/7		
24/7		

METERED OUT OF GOV'T TANKS	
FILLER PRODUCTION	
FILLER LOSS (BTLS.)	
ACCTBLE LOSS	
UNACCTBLE LOSS	

METERED OUT OF GOV'T TANKS	
FILLER PRODUCTION	
FILLER LOSS (CANS)	
BBLS. BTLS. PRODUCED	
BBLS. CANS PRODUCED	
BOTTLE YIELD %	
CAN YIELD %	

LOST TIME ANALYSIS

LINE NO.	CAN CHGS. NO.	CAN CHGS. TIME	MECH.	MAT'L	NORMAL	MISC.	MECH. EFF. %
1 BTL.							
2 BTL.							
3 BTL.							
4 BTL.							
5 BTL.							
7 BTL.							
8 BTL.							
9 BTL.							
10 BTL.							
11 BTL.							
12 BTL.							
31 CAN							
32 CAN							
33 CAN							
34 CAN							
35 CAN							
TOTAL		H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	%

These two report forms speed up work of recording, explaining lost time.

Handling Too Small A Unit?

Looking at scheduling and order size, it becomes evident that some tasks are done in too small units to be practical for high speed operation.

Dumping 12/12 cans manually from reshipper cases onto the unscrambler belt is unprofitable. There are simply too many movements for the number of cans handled per minute. We are aware of it as it shows up in downtime reports and are planning on different methods to eliminate this practice.

In many such cases mechanical equipment has been developed, is available, and possibly running with good success in other plants. A special package may be only a minor portion of the entire plant output and therefore not justify the expense of the best equipment available. A unit with slower output may be run profitably where a high-speed machine is out of question.

Having reserve machinery. Another important consideration is that of standby equipment. A slow or medium speed line may be kept in operation by manual fill-in if some unit of the line should fail. A standby facility, of course, will insure operation with minimum danger of complete stoppage. The high-speed line must have this standby facility to fall back upon when unexpected stoppages occur.

But beyond this it needs full size standby facilities to bring in the new or returnable packaging material as well as those for the removal of the finished goods. The smaller the available storage area for both categories, the more is the duplicate equipment indispensable. Planning for this is vital. Breakdowns will occur.

Complicating Your Troubles

Higher speed machinery introduces other complexities. Time lost for troubleshooting during production breakdowns will show up at a higher percentage of loss even if elapsed time does not increase. More and better maintenance personnel will be needed. Training of such personnel will have to be on a broader basis and may require more specialization.

High speed machinery inevitably requires upgrading the skill of mechanics. The mechanic basically skilled with hammer and wrench must be trained for troubleshooting with units incorporating hydraulic, pneumatic, and electronic components. Memory circuits are more frequently encountered. The more complicated type of equipment calls for a better-equipped

(*Continued on Page 69*)

Polyethylene density: Yardstick of classification and performance

Few packaging materials have evoked as much discussion and efforts toward classification as has polyethylene. Some seek to classify it according to its method of manufacture. Others do it by a combination of parameters. Mr. Kaufmann and Mr. Morris suggest we classify polyethylene on the basis urged by American Society for Testing Materials, that is, according to density. In their discussion, they relate density to functional properties and explain it in terms of tensile strength, stiffness, abrasion resistance, water vapor transfer, heat resistance, and gas and liquid permeability. They also discuss the balancing of functional properties to meet a given requirement of performance.

By Kenneth A. Kaufmann,
Manager, Plastics Technical Service,
and John Morris,
Plastics Technical Service,
Spencer Chemical Company,
Kansas City, Missouri

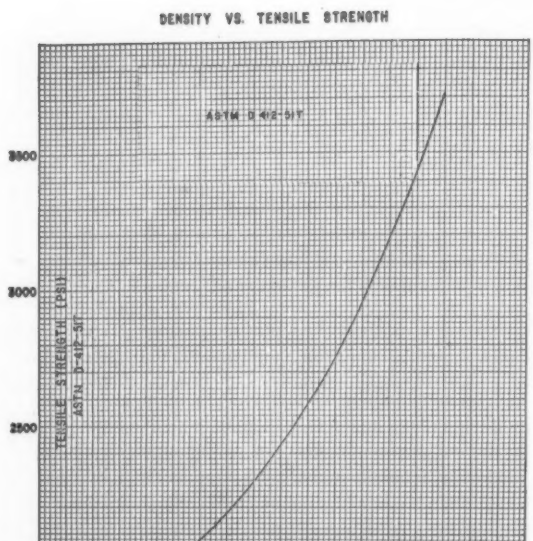


Fig. 1. Higher the density, greater the tensile strength, higher the yield strength, less the elongation. ASTM D-412-51T.

Polyethylene resins, and the packaging films made from them, are available today in a rather wide range of physical properties as a result of manufacturing discoveries over the past three to four years. The historical method of producing polyethylene dates back to the process developed by Imperial Chemical Industries of Great Britain in the early 1940's. This system involved the use of very high pressures and high temperatures to polymerize ethylene gas. This kind of polyethylene has a density in gm/cc. ranging from 0.910 to about 0.925.

About three years ago, the Ziegler process was perfected in Germany, as was the Phillips Chemical process in this country, to produce densities of 0.940 to 0.965. These processes utilize low pressures and moderate temperatures, and the polyethylene produced is significantly stiffer than conventional polyethylene. These materials were often called linear because their molecules had fewer side

branches. About two years ago, Spencer Chemical commercialized an intermediate material having a density of 0.935 made by a modification of the ICI process. Now both processes are capable of covering a wide spectrum of the polyethylene density range.

Confusion is abundant. As a result of all these techniques and products, many terms, as utilized above, have been used to identify the various polyethylenes such as "low," "conventional," "regular," "intermediate," "medium," "high density," "high pressure," "low pressure," "Zeigler," "Phillips," "stiffer," "linear," and so on.

Seeking to minimize this confusion surrounding polyethylene classification, American Society for Testing Materials proposes a classification based on density and regardless of manufacturing process: Type I—0.910 to 0.925; Type II—0.926 to 0.940; and Type III—0.941 to 0.965. This strictly functional distribution should serve to eliminate much terminology confusion.

What Is Density?

What is polyethylene density? Definition-wise, it is the weight per unit volume of the material and is usually expressed in gm/cc. It is a measure of the crystallinity of the polyethylene. The higher the density, the more crystalline and, like metals for instance, the stiffer and harder it is. The lower the density, the more amorphous, and like rubber for example, the more flexible and soft it is.

Density, in a way, refers to how closely the molecule chains are packed together or how tightly they are positioned. A good way of imagining how density affects some properties is to liken it to the tightness or looseness of woven cloth. The tighter the weave (the higher the density), the stiffer the cloth, the more resistant to water flowing through it, the harder to pull it apart, and so forth. Similarly, as polyethylene density increases, the stiffer it is, the more it resists permeation by liquids and gases, the higher its strength,

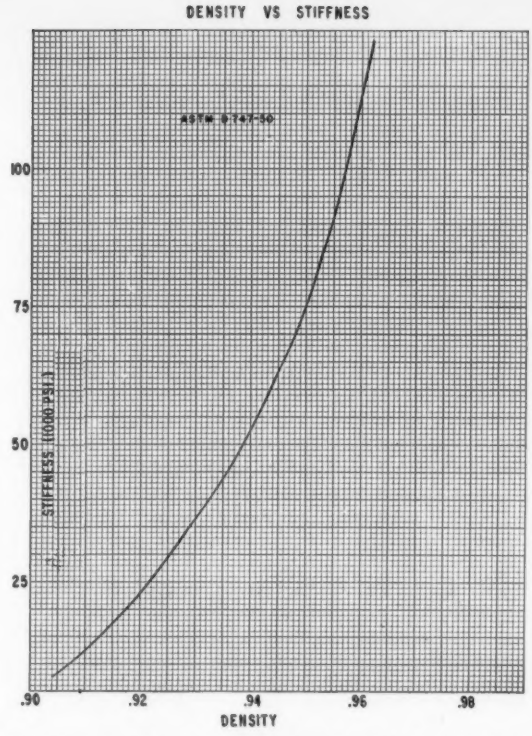


Fig. 2. Stiffness increases as density rises, but as density gets higher, impact strength, brittleness, and tearability (once a tear starts) become worse. ASTM D-747-50.

and the greater its resistance to abrasion.

Tool of comparison. Perhaps the chief value of density is that it provides a tool of comparison. Density differences are important to us because they result in differences of the physical properties of the resins and hence of the polyethylene films made from them.

However, we need to remember that materials within the various density ranges proposed by ASTM do not abruptly separate from one another. Changes do not take place sharply at any of the numerical designations indicating low, medium, or high densities. Rather, we have subtle, slight variations taking place continuously over the whole density spectrum. Variations in properties are detectable when the difference in density is 0.003 or more. (*Turn Page*)

Kenneth A. Kaufmann is a graduate of Pratt Institute with a B.Ch.E. degree, Subsequently, he received his M.Ch.E. degree from Rensselaer Polytechnic Institute and did further graduate work in chemical engineering at Brooklyn Polytechnical Institute. Prior to joining Spencer, he was associated with Celanese Corporation of America, Gering Products, Inc., and Catalin Corporation of America. Joining Spencer in 1954 as head of its plastics application research, he later became manager of the sales service laboratory, prior to attaining his present position. Mr. Kaufmann has been active in ASTM, ISO, SPI, and SPE activities on behalf of Spencer.

John F. Morris is a graduate of the University of Kansas with a bachelor's degree in chemistry. Following graduation he joined Hercules Powder Company in its process engineering department. With Spencer since 1956, Mr. Morris, a staff member of Spencer's sales service laboratory, is a member of the polyethylene group and specializes in extrusion.

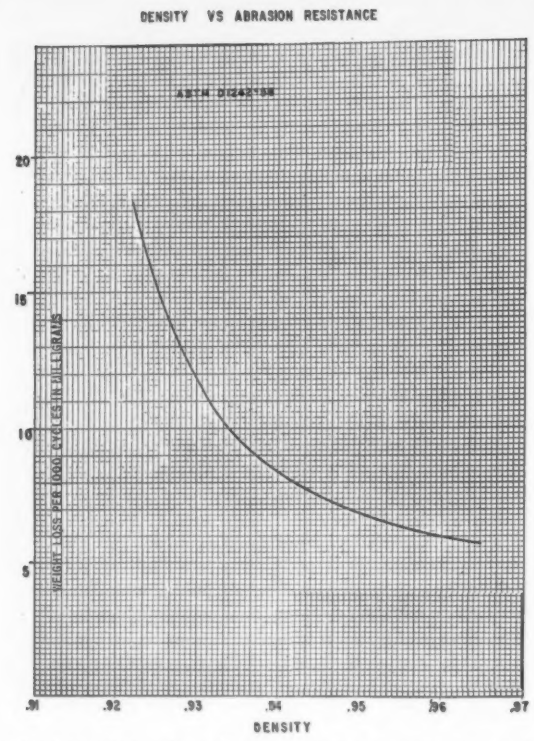


Fig. 3. Higher the density, higher the surface hardness—thus more resistance to abrasion. ASTM D-1242-56.

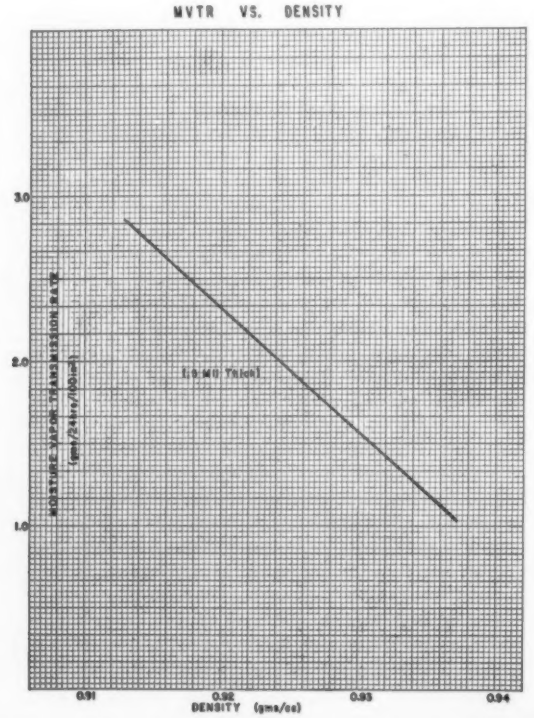


Fig. 4. As density increases, resistance to water vapor transfer improves. Thinner films of high density can equal thicker films of low density in WVTR.

Further, some properties (such as permeability) change rapidly over one area of the density spectrum and then change very little with further changes of density. Other properties change at the same rate regardless of the position along the density scale. In this respect, the Type II resins retain many of the advantages of the Type I, while also achieving many of the advantages of the Type III, as can be noticed by a study of the graphs.

Functional Properties

Turning to the relationship between density and functional properties, we find that as density increases, grease resistance, stiffness, tensile strength, heat resistance, and abrasion increase. On the other hand, water vapor transfer, gas, and solvent permeability decrease as density increases.

Tensile strength. The higher the density, the greater the tensile strength, the higher the yield strength, and the less the elongation. This follows from the effect of higher crystallinity and may be likened to the tightly woven cloth which is more difficult to pull apart. (See Fig. 1)

Stiffness. Likewise, stiffness increases as density rises. However, impact strength, brittleness, and tearability after a tear is started, all tend to become worse with increasing density. This follows, of course, from the higher crystallinity and the resulting lower elongation. (See Fig. 2)

Impact Strength. As just mentioned, impact strength of film varies inversely with density. In this respect Type II polyethylenes, as with the above properties, have values midway between the other two types. As this suggests, the lower density films have the best tear strength. However, the film extrusion operation has considerable effect upon this property and careful control is essential with the Type II resins.

Abrasion resistance. The higher the density, the higher the surface hardness and thus the more resistance to abrasion, as is usually the

case with tougher materials (See Fig. 3)

Water vapor transfer. All polyethylene film has excellent resistance to water vapor transfer. As will be noted, however, as density increases, this resistance also improves, thus allowing thinner films of higher density polyethylene to be equivalent to thicker films of lower density. One word of caution, however; there exists a minimum thickness below which practical gains are offset because of minute pinholes and other film defects. (See Fig. 4)

Permeability. The resistance to gas and liquid permeability also improves with increasing density. However, as will be noticed from the charts, there is not a consistent improvement, in that maximum betterment is achieved by going from Type I to Type II densities. Beyond that, into Type III, the amount of improvement becomes almost academic. That is, beyond about 0.938 density, very little improvement is noted. It should be remembered that the figures represented both here and for water vapor transfer apply only to the film thickness tested. Other values may be obtained at other thicknesses. (See Fig. 5 and 6)

Heat resistance. In discussing heat resistance for packaging applications, we are usually concerned about the boiling point of water. Vicat softening temperature is an often used arbitrary test to measure heat resistance of polyethylenes. It is determined on molded pieces. Although the boiling point of water is normally 100°C., because of the thinness of films, we usually consider that Vicat softening point should be greater than 105°C. to provide satisfactory boilability. (See Fig. 7)

Thus from the chart, a minimum density of 0.931 is necessary. To allow a safety factor, however, we would recommend a value of 0.932 or above. The Type II material brought out by Spencer two years ago, "Hi D," a density of 0.935, gives excellent boilability resistance. As noted from the chart, con-

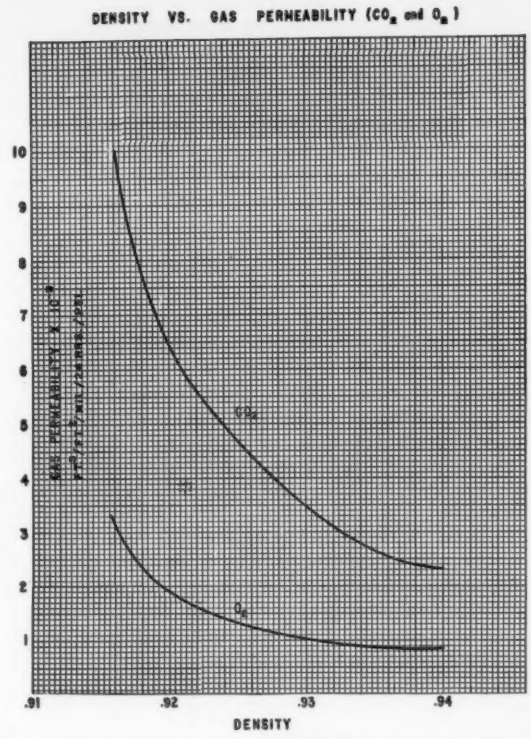


Fig. 5. Resistance to gas permeability improves as density increases, but improvement is not consistent, as chart shows.

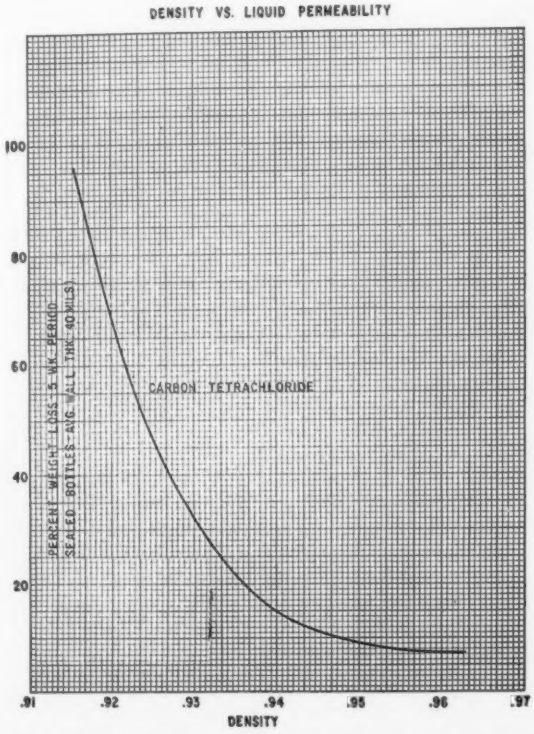


Fig. 6. Resistance to liquid permeability improves with increasing density. As with gas permeability, improvement is not consistent.

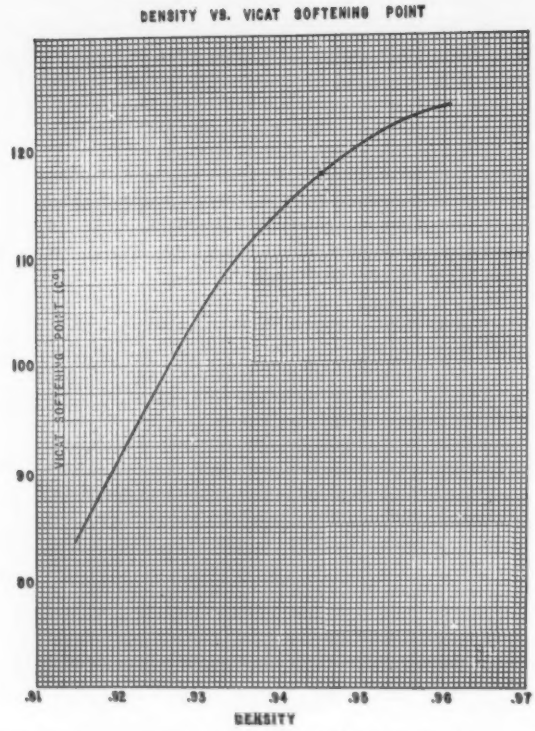


Fig. 7. Vicat softening temperature is test of polyethylene heat resistance. Improvement decreases as density increases above 0.935.

tinued increases in density above 0.935 give less and less improvement.

Clarity. Here we usually refer to see-through clarity, but film haze and surface gloss are closely related factors. See-through clarity improves with density, reaching its maximum with Type II materials at a density between 0.935 and 0.938. Beyond this point, with normal film production practices, it decreases so that Type III materials often have poor clarity. Haze approaches its minimum again in the medium density materials between 0.930 and 0.935. Surface gloss, however, increases almost linearly with density so that the Type III materials are very good in this property.

Thus, we see that clarity and haze are at their best for Type II materials somewhere close to 0.935 density. One point which ought to be emphasized is that while clarity increases with density up to and including the Type II materials, impact strength decreases so that a maximum clarity film may be undesirable for packaging such things as carrots or other pointed objects which are dropped into bags.

Slip and block. Type I polyethylenes are usually formulated with additives designed to increase slip by reducing the coefficient of friction of the surface and to minimize block, the tendency for the sides of a bag to stick together. Unlubricated Type I film generally has coefficient of friction values of about 1.0; when lubricated, values range from about 0.20 to 0.50, depending upon customer preference. The stiffer Type II polyethylenes, because of their rigidity require less adulterating additive. In the unlubricated state, their coefficient of friction is usually around 0.50 and because of stiffness are normally usable in this state in high speed packaging. They are available, though, with slip additives if needed.

Blocking, again because of stiffness and surface characteristics, is normally non-existent with Type II and III polyethylenes. Thus there is a distinct advantage for the use of these higher density materials in high speed operations.

Check Performance Factors

Close attention to density is important when evaluating performance requirements. For example, the increasing density allows thinner films for many applications if one studies the effect of higher density on the properties most important to the applications.

To illustrate this, using 0.0005 in. film, a 0.920 density polyethylene would give a WVTR of 2.3, while a 0.935 density material of the same thickness reduces WVTR to 1.0. On the other hand, about 0.002 in. film of about 0.920 density would give a WVTR of 0.8, which may be a desired level of performance. With a 0.935 film, the same level of protection would be afforded with only 0.001 in. thickness. Similar calculations can be made in terms of tensile properties, stiffness, etc.

Comparing The Costs

In checking performance factors one should not lose sight of the cost of the film. In polyethylene resins, cost rises as density rises and this is often but not always reflected in the film price. In the last example above, for instance, in terms of resin cost only, the same degree of protection is attained at a $0.07/lb. premium, but since half the film thickness is required for the higher density material, the material cost is actually only 60 per cent of the low density polyethylene.

Costs merely one factor. This, however, cannot be strictly related to film price because the film producer gets lower production rates with thinner film and also has a little more difficulty producing it. Our point, of course, is that film density and the properties it gives should be considered in the light

(*Continued on Page 70*)

General Mills has a reason...

Delicate egg whites in this new Betty Crocker Meringue Mix require special packaging protection. That's why General Mills turned to Riegel for development of a superior, *engineered* packaging material. The result: a Riegel tailor-made Poly laminated Pouchpak* with extremely high protection against odor and moisture transmission, and a good balance of strength and pliability.

Like General Mills, you too can count on the extra benefits of protection by *Riegel*: Product protection always, *plus* flexible packaging materials that are:

...tailored to run at high speeds on automatic machines

...made to your own specifications; printed, waxed, coated, and laminated combinations of all types

...priced to give the best possible protection at the lowest unit cost

Hundreds of today's best-sellers benefit from Riegel's uniformly effective system of product protection. You can too. Write Riegel Paper Corporation, 260 Madison Avenue, New York 16, N. Y.

Riegel

PROTECTIVE PACKAGING MATERIALS

Betty Crocker Meringue Mix is packaged in a special Riegel Pouchpak consisting of printed pouch paper Poly laminated to foil. Packaged at high speed on Bartelt equipment.* *TM

Bernard F. Major has been associated with the Ortho Pharmaceutical Corporation for twelve and a half years. Previously, he was employed by the Phelps Dodge Company and the E. I. du Pont de Nemours and Company (Inc.) He attended Syracuse University and is presently in his senior year at Rutgers University working toward a B.S. degree in marketing. A professional member of the Packaging Institute, he serves on the Drug and Pharmaceutical Committee.

Reduction in packaging costs through "value analysis"

By Bernard F. Major,
Manager,
Packaging Laboratory and Receiving and Stores Division,
Ortho Pharmaceutical Corporation,
Raritan, New Jersey

Every organization has the desire to operate as economically as possible. Reducing the costs of packaging will aid in attaining such a goal. In discussing "value analysis" of packaging, Mr. Major points out the fact that the help of all those involved in the development of packaging is required. He stresses the point that each packaging component must be evaluated individually in order to effect an optimum saving. His discussion of the evaluation of alternates, his description of how to perform a value analysis, and his suggested cost data and evaluation worksheets should be extremely helpful to anyone desiring to undertake such an analysis.

As a result of general economic conditions, many companies across the nation are asking the question: "How can we reduce costs?" If the question has been asked of you in connection with packaging materials, this article should be of particular interest. It covers a tried method for conducting a "value analysis" of packaging.

Value analysis is simply analyzing current packaging to determine if you are obtaining the maximum return for the money you are investing in packaging materials. An example would be to find that 200-lb.-test corrugated board is being used for a shipping container when 125-lb.-test will do all that is required.

It is quite natural for a company to assume that each package presently used had been thoroughly evaluated when it was originally developed. This may be perfectly true. However, new materials, designs, processes, and equipment are constantly being introduced to the market because they are more efficient or less costly than their counterparts.

These changes and new developments may be avenues to substantial savings for you. This article outlines a method for conducting a value analysis of each component part of a package individually, and collectively in the form of a finished package.

Departmental Cooperation

The purpose of the evaluation is to uncover more economical means of doing the present packaging job by comparing the cost of current packaging, materials, methods, and equipment with all others available. To perform a thorough value analysis of packaging, the help of all those involved in the development of packaging is required.

If the evaluation is to be complete, factual, and timely, it will require, at various times, the cooperation of production, purchasing, promotion, and other departments. Their cooperation will be greatly assured if they are informed of the objective, how it is to be achieved, and the part each is to perform in carrying out the evaluations. For this reason, and as a guide in this broad subject, a plan is essential.

The method described herein is covered in four steps:

1. Obtain current component costs—the central point against which all alternates will be compared.

2. Determine the extent to which the evaluation will be carried—limitations are necessary in order to prevent the work from becoming too comprehensive, which could result in an endless research project.

3. Determine the alternates—substitute materials, methods, and equipment capable of doing the job required.

4. Set up the presentation—one which can be read easily by top management.

OBTAIN CURRENT COSTS:

The first step in an evaluation is to know the cost factors concerning the components used presently. Fig. 1 illustrates a simple chart which can be used for recording the data as it is obtained. The following information is required:

Component cost
Normal order quantity
Yearly usage
Labor cost to package the component
Equipment cost (if substantial)
Mold cost (if substantial)

List Components Individually

If a company is small, it may wish to perform a value analysis of all packaging components used by the company regardless of the expenditure it represents. A larger company may elect to evaluate only those components which represent a yearly expenditure of over $5,000; if time is a limiting factor, the evaluation can be restricted in this manner.

When it is decided which components are to be included, *each component* should be listed *individually* on a data sheet showing its basic cost. Fig. 1, representing such a data sheet, begins with a listing of each type of folding carton currently used. There is no particular reason for beginning the list with this component. However, *all components* of the type heading the list should be shown in this section *individually*. It is not enough to evaluate components in groups, such as all folding cartons or all tubes. Each individual component which is even slightly different from any other should be listed separately, for it might be this slight difference which makes it costly; likewise, multiple parts of a single component should be shown individually.

Fig. 1 indicates that three different cartons are to be evaluated, each used for a different product, namely, products A, B, and C. Should you have 50 different cartons which are to be included in the evaluation, each would be listed in this section separately and identified by product or code number. As will be noted in the illustration, the components listed consist of multiple parts and are broken down as such. This breakdown assures a thorough analysis. Following cartons, all tubes might be listed, then all sleeves, inner packing, corrugated containers, etc., continuing until all components have been recorded.

A listing of all components may be readily available if a code reference book exists in your company. Without such a book, it may be necessary to have a listing of your components made up from your inventory control records. For brevity, our example (Fig. 1) shows only three folding cartons and three tubes.

Component Cost. The component cost is the cost of the packaging item as it is supplied to you. In the example shown in Fig. 1, the cost of one tube for product A is $0.14. However, this tube is supplied with an internal liner and a cap. The costs of the internal liner ($0.03 each), the cap ($0.01 each), and the tube ($0.10 each) are *listed separately* because each is to be *evaluated separately*. Note that the cost of a single unit is shown. However, depending upon the individual, costs can be stated as per gross, per thousand, etc.

The costs of present components are usually maintained in the inventory control, cost accounting, or purchasing departments. Ideally, one of these departments might record the costs directly on the cost data sheet.

The cost of the carton with inserts for product B, shown in Fig.

Basic Cost Data Sheet (Present Packaging Materials)

Component	Product	Component Breakdown & Cost Per Each Part			Normal Order Quantity	Yearly Usage	Yearly Labor Cost	Equipment Cost	Mold Cost
		Carton	Insert X	Insert Y					
Folding Carton	A	$0.09			25 M.	300 M.	$ 3,000	$12,000	
	B	0.11	$0.01	$0.009	20	240	2,400		
	C	0.07	0.012		50	600	6,000	3,000	
		Tube	Liner	Cap					
Tube	A	$0.10	$0.03	$0.01	1,000 gro.	12,000 gro.	720	same	
	B	0.08		0.02	3,000	36,000	4,320	15,000	
	C	0.06	0.02	0.025	15,000	180,000	27,000	4,000	
Inner Packing									
Corrugated Container									
Etc.									

Fig. 1. Excerpt of a convenient form for recording basic data concerning currently used packaging components. These cost factors are necessary in conducting a "value analysis" of packaging. Note that each component, even though only slightly different from another, is listed separately — not in groups of like components — for it might be this slight difference which makes it more costly; likewise, multiple parts of a single component (folding carton above) are shown individually.

Give your product a lift with a

WHIZ-LIFTER

MATERIALS ELEVATING MACHINE — Assures speedy, automatic bulk product elevating into hopper of a weighing or filling machine without danger of spillage or breakage! Will handle drugs, hardware, pharmaceuticals, plastics, chemicals, etc., with trouble-free efficiency.

FRAZIER & SON
20-01 INDUSTRIAL WEST, ALLWOOD
CLIFTON, NEW JERSEY
Designers and manufacturers of • Volumetric and Net Weighing Machines • Parts Handling Equipment • Rotary Filling Machines • Conveying & Elevating Equipment

Circle No. 218 on Card

Ellisco

S·E·A·M·L·E·S·S CANS

MAKE ATTRACTIVE, ECONOMICAL PACKAGES FOR YOUR PRODUCTS
easy-to-use-ship-store

Deep Style 22. Also, Flat Style 12
Lithographed Cans for Tape and Other Products
Flat Style 10 LabelStik. Also, Deep Style 20
Screw Top Style G6
Flange Top Style G3 for hermetic sealing

Some of the many ELLISCO Seamless Cans available are shown. They are **light weight, made of one piece, unbreakable**—ideal for packaging many products, for laboratory use and for handling and storing small parts. Capacities: 1/16 oz. to 16 oz. Also many sizes and styles of seamed cans available. Write, wire or call us with your can packaging problem. Ask for Bulletin 116.

GEORGE D. ELLIS & SONS, INC.
4022 N. American St. Dept. PE-1 Phila. 40, Pa.
BAldwin 3-3405

1, will probably be carried on the cost accounting record at $0.129 each. To determine the individual part costs, where multiple parts are involved as with this carton, it will probably be necessary to obtain the breakdown from your supplier.

Normal Order Quantity. The normal order quantity is the amount normally ordered at one time. If a thousand units of the component are used during a year and the purchasing department orders the component four times each year, the normal order quantity will be 250 units (1,000÷4).

Price quotations submitted by the supplier are based on the amount ordered at one time. The *current component cost* is based on this *order quantity*. Therefore, as costs are obtained for alternates later, they too must be based on this normal order quantity. Otherwise, a fair cost-comparison will not exist.

Yearly Usage. The number of components used yearly is important. This is necessary in order to determine annual costs for the component; later, the yearly savings which will result by the use of alternates. Again, the inventory control, cost accounting, or purchasing department will generally have records from which the yearly usage can be determined.

Yearly Labor Costs. Labor costs recorded in Fig. 1 must be those actually attributed to the component by your packaging department. The labor applied directly to the particular component is recorded for comparison to that required for alternate items under consideration—whether it is more or less. Where material and equipment costs are identical, a savings may be effected because of reduced labor requirements.

It is not necessary to obtain labor expenses for every item under consideration. By discussing the list of items generally with the packaging or cost accounting department, it will usually be possible to pick out those specific components which require substantial labor. Certain labor costs may be applied across the board for similar components. Rather than have a great deal of time spent to calculate the labor required, where it is not presently available, a question mark can be placed on the cost sheet. However, if labor costs are found to be a governing factor in your final evaluation of alternates, it should be studied.

Equipment Costs. The equipment costs shown in Fig. 1 indicate the cost of the equipment now being used by production for the component being evaluated. In order to use a tube, a filling and crimping machine is required. The cost of such equipment (as shown in Fig. 1) might be $15,000. Alternate materials or components may be found which require less expensive equipment.

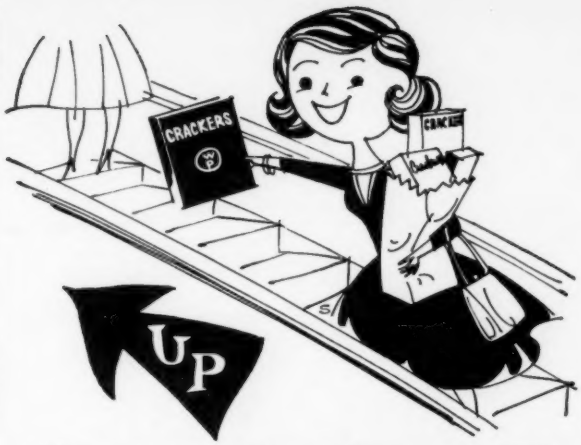
If all other factors are equal, a potential saving can be presented. These costs can be obtained from the packaging, accounting, or, perhaps, the purchasing department. Generally, that equipment which is considered as capital investment will be of sufficient value to consider in the value analysis.

Mold Cost. These costs are for molds which are the property of your company, for which you are charged directly. The components illustrated in Fig. 1 do not require molds. Alternate components which require less expensive molds (all other factors being equal) are potential savings. Mold costs are generally recorded in the accounting or purchasing departments.

The information obtained and shown in Fig. 1 will be necessary in order to compare the costs of alternate packaging materials, methods, and equipment introduced throughout the analysis.

LIMIT THE VALUE ANALYSIS:

The next step in this method is determining the extent to which the analysis is to be carried. As stated previously, it can be restricted to components over a given value. In setting up a cost data sheet, as shown in Fig. 1, the cost factors are being restricted to those



Moves your cracker sales up, Up, UP!

Sales-Power Packaging Begins With Lower-Cost WAXED PAPER

Billboards your brand name into a buy-word! Waxed Paper keeps products more tempting to see, tastier longer—and fresh as can be!

- **Product Protection**—Guards against moisture so all that delicious flavor and texture stays at just-baked perfection. Waxed Paper means longer package life from you to stores to consumers. Results: satisfied customers, repeat customers, instead of returns and brand switching. Get double protection, too, with inner Waxed Paper wraps as well as outside or with inner wraps of Waxed Glassine to keep unused contents fresh!
- **Appetite Appeal**—With all the original flavor and texture kept intact the Waxed Paper way, your product delights appetites every time. Even the shining Waxed Paper wrap says "this is a fresher, crisper, tastier treat!"
- **Billboards Your Brand**—Strong, sharp imprinting gives your brand real *billboard* impact! Commands attention in stores, prompts more sales, adds all-important, profitable remembrance value to your name. Rugged and self-sealing, Waxed Paper handles easily on the machine; passes every shipping, in-store and consumer handling test!
- **Lower Cost**—Unusually low initial wrapping costs and a supply of Waxed Paper always available! Count on Waxed Paper to count up more profits!

Waxed Paper teams up with the experience and know-how of the nation's top converters and designers. Gives your product the protection and modern style packaging that builds bigger brand business! For expert packaging help, see your Waxed Paper salesman today. Or write us, phone us direct.

W PROTECTS · FRESHNESS AND FLAVOR P

WAXED PAPER MERCHANDISING COUNCIL, INC. • 38 S. Dearborn St., Chicago 3, Ill., STate 2-8115

Service comes in

WS TUBES

Wheeling Stamping gives you the kind of service you would expect from *a department of your own business.* We specialize in tubes and caps—make nothing else. We're small enough to treat your requirements personally, big enough to provide all the capacity you can use. When WS is your tube supplier, you can count on having tubes *where* you want them, *when* you want them—delivered right to your door *by motor freight,* delivered according *to your production schedule.*

PLASTIC CAPS and FITMENTS

WS gives you the same kind of custom-tailored service on hard and soft plastic caps, tips, sifter tops, eye cups, rings and special fitments.

WHEELING STAMPING CO.
WHEELING W. VA.
WSCO

shown in this data sheet. (Fig. 1)

Actually, other factors can influence the cost of the component. Some of these might be storage space required for the component, receiving and inspection time, the amount of scrap occurring, procedures involved in quantity buying (totally a purchasing method), etc. These factors represent a study alone which should not be overlooked.

However, to keep this analysis comprehensible, it has been restricted to those factors shown in Fig. 1. If worthy savings are uncovered in other areas during the analysis, include them in the presentation.

The Worksheet

To further channel the analysis and to help simplify the job ahead, a worksheet similar to that shown in Fig. 2 can be made up. As illustrated, each component is to be analyzed from four aspects, namely, material, size, design, and finish. This breakdown will help during the evaluation in the following manner:

A different basic material can be used while maintaining size, design, and finish. *Example*: Type I glass *vs* Type III glass; Urea *vs* Melamine.

The size can be changed without affecting the material, design, and finish. *Example*: 5-in. high nest *vs* 4-in. high nest; reducing amount of material in cap—thinner walls, etc.

Design can be changed without changing material, size, or finish. *Example*: A special-slotted carton *vs* a regular-slotted carton; a five-panel carton in place of a tray and outer sleeve for a prescription package.

The finish can be changed without changing the material, size, or design. *Example*: Aluminum finish *vs* brush finish shoulder on tubes; clear *vs* ceramic coating on bottles.

If another type of breakdown is easier for you to understand and apply, then it should be used in preference to this. The importance

Evaluation Worksheet
Packaging Component: Folding carton for products A, E, & M.

(Note: The carton covered in this evaluation does not have inserts or attachments. If there were such items, they would be evaluated spearately on other worksheets.

Aspect Evaluated	Function of and/or Restriction upon Component	Proposed Costs*				Proposed Savings (per M. components)			Proposed Annual Savings (gro. × 500)‡	Proposed First Year Savings§
		Component	Plate or Mold	Equipment	Labor	Components†	+ Labor	= Gross		
Material										
Present: Solid sulphate										
Alternates:										
1—Kraft	Completely satisfactory	$87/M.	....	same	same	$ 3	....	$ 3	$ 1,500	.....
2—Solid news	Reduced quality appearance	83	....	same	same	7	....	7	3,500	.....
3—Plain bending chip	Reduced quality appearance	79	....	same	same	11	....	11	5,500	.....
Size										
Present: 0.020 in.—3x2x5 in.										
Alternates:										
1—Caliper to 0.018 in.	Completely satisfactory	86	....	same	same	4	....	4	2,000	.....
2—Caliper to 0.016 in.	Slight corner damage in shipping container	84	....	same	same	6	....	6	3,000	.....
3—Size to 3x1½x5 in.	Package appears smaller	84	....	$1,000	same	6	....	6	3,000	$ 2,000
4—Increase size to hold 6 units	Completely satisfactory	240‖	....	4,000	$30/M.‖	50	$5	55	27,500	23,500
Design										
Present: Reverse tuck	Display container									
Alternates:										
1—Sealed end	?	76	....	?	?	14	——	14	7,000#	?
2—Plain tray with paper overwrap	Reduced quality appearance	72	....	8,000	same	18	....	18	9,000	1,000
3—One-piece folded	Slight increase in carton damage	74	....	0	?	16	——	16	8,000#	.....
Finish										
Present: High gloss No. 90, two colors and varnished	Attractiveness									
Alternates:										
1—Gloss to No. 75	Slight decrease in gloss	82	....	same	same	8	....	8	4,000	.....
2—White clay-coated news	Reduced quality appearance	78	....	same	same	12	....	12	6,000	.....
3—Machine-coated	Reduced quality appearance	75	....	same	same	15	....	15	7,500	.....
4—One color on colored board and varnished	Completely satisfactory	81	....	same	same	9	....	9	4,500	.....
5—Eliminate circular inserted into package, and print on carton	Reduced quality appearance	92	$150	same	4	—2	6	4	2,000	
						[circular cost ($20/M. × 500)]:			10,000	
								Total:	12,000	

*Present costs: Component - $90/M.
Equipment - $12,000.
Labor - $10/M.

†Computed by subtracting "proposed component cost" from "present component cost."

‡Based on yearly usage of 500M. units/yr.

§Computed by subtracting "proposed equipment cost" from "proposed annual saving."

#Proposed annual savings for component only since labor costs are unknown, and equipment cost for Alternate 1 is unknown.

?Indicates information is unavailable.

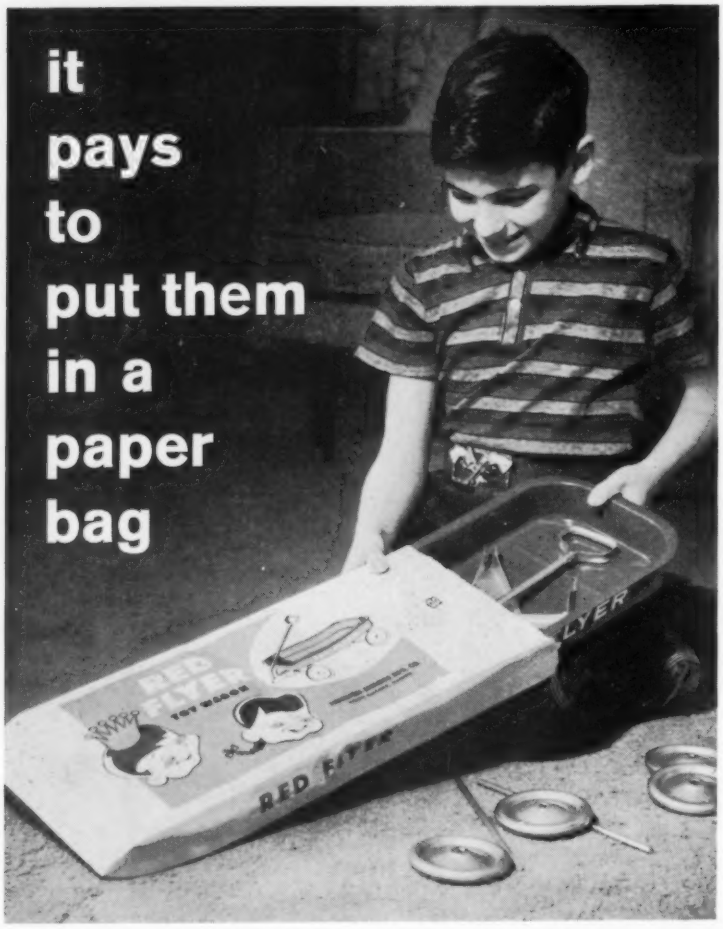
‖$240/M. is cost of component to hold 6 units, whereas present component cost is for 1 unit; hence, 240 ÷ 6 = $40/M. individual units. This latter cost is compared with present cost of $90/M. to determine proposed saving; hence, 90 — 40 = $50/M. individual units as the proposed component saving.

$30/M. is labor cost to pack the proposed cartons each of which holds 6 units. It is necessary to convert this cost to that for 1 unit for comparison purposes; hence, 30 ÷ 6 = $5/M. individual units. The present labor cost is $10/M. individual units; thus 10 — 5 = $5/M. units proposed labor saving.

Fig. 2. Suggested worksheet form for evaluating a single packaging component. A definite aid to channeling the analysis and simplifying the work. Note that the component is analyzed from, and broken down into, four aspects, namely, material, size, etc. The importance of this type of breakdown is to stimulate thought and to guide the individual making the evaluation. At a glance, one can easily determine the savings effected by altering a single aspect ever so slightly.

when you pack "knock-downs" for

HOME ASSEMBLY



Compact, convenient paper bags make excellent security agents for packaged home-assembly products. They speed packing, help lower shipping and handling costs, conserve valuable warehouse and shelf space.

Take the toy wagon bag, above. It packs 22 put-'em-together metal parts. Bag replaces carton, is lighter, less expensive. Colorful printing serves as economical advertising for brand name and contents.

Write for free Booklet CP-1 today. It illustrates dozens of different ways paper bags are helping manufacturers save money, both inside the plant and out.

union camp

Commercial Packaging

UNION BAG-CAMP PAPER

CORPORATION

233 BROADWAY, NEW YORK 7, N. Y.

of the breakdown is to stimulate thought and to guide the individual making the evaluation. A more detailed explanation of these aspects is covered when alternates are presented.

Points On Recording Information. Basic cost information (Fig. 1) concerning the present component can be entered on the worksheet, Fig. 2, if desired. In every instance, details are important only to the extent that they cause the component to be a "special" with a resultant increase in cost; or, that such details are restrictions which must be maintained.

When recording the information, a considerable amount of time will be saved if the factual data obtained is plotted, if that which is an approximation is indicated as such, and if the unknowns are noted by a question mark in the appropriate space. It can be determined later if the time or effort required to obtain costs from every viewpoint is worthwhile.

The present status under each of the aspects, beginning with material, is obtained from the component specification sheet. If it is not part of the specification, it can be obtained from the purchasing department, or, from suppliers.

Definition Of Aspects. *Material* is the basic raw material from which the component is fabricated, such as: Aluminum 99.7 per cent pure, Type I glass, jute, manilla, plastics, etc. Under *size*, the general size will usually be sufficient. However, if the size is not standard and is made to special requirements, follow the size with a notation of "special". The *design* should be noted if it is commercially established, such as: Straight-tuck carton, regular-slotted corrugated container, blake bottle, etc. Again the specials should be so earmarked.

Note the *finish* wherever one is specified. If it is the natural appearance of the basic material, it need not be recorded *except where the natural finish is a special requirement.* Thus, all finishes recorded should be considered as

FREEZE IT...

OR BOIL IT!

New "Scotchpak" Heat-Sealable Polyester Film withstands -70° to 240°F temperatures

3M Research Laboratories now give you a clear-as-glass packaging film designed especially for the food industry—a film with a combination of properties unlike any other film on the market.

This new "Scotchpak" Film resists freezing cold (down to -70° F) and boiling heat (up to 240°F!)—yet can be heat sealed at 275° to 400°F. with only 20-60 psi in 0.2-2.0 seconds. It blocks ultra-violet rays—gives longer shelf life to all food products.

"Scotchpak" is *tough* and has higher seal strength than any other film. It can be easily handled on conventional bag making and filling equipment. Still, "Scotchpak" is priced competitively with existing so-called "boil-in-the-pack" films. It is available in a 2 mil thickness in rolls up to 50 inches wide, ready for printing —if you desire.

For complete facts and figures on this dramatic new food packaging development, write 3M, Dept.LY-98, St. Paul 6, Minn. Do it *today!*

TRADEMARK

SCOTCHPAK BRAND **Polyester Film**

MINNESOTA MINING AND MANUFACTURING COMPANY

...WHERE RESEARCH IS THE KEY TO TOMORROW

3M COMPANY

For more information circle No. 223 on Reader Service Card

GAYLORD TRIMS
YOUR PACKAGING COSTS

Gaylord's approach to packaging doesn't stop with the corrugated box itself. We take a fresh look at your entire packing and handling cost picture, then tailor a program to your exact measure.

Regular cartons in big volume . . . engineered packaging . . . your nearby Gaylord man knows both. And he is cost-conscious either way.

GAYLORD
CONTAINER CORPORATION

HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST

DIVISION OF **Crown Zellerbach Corporation**

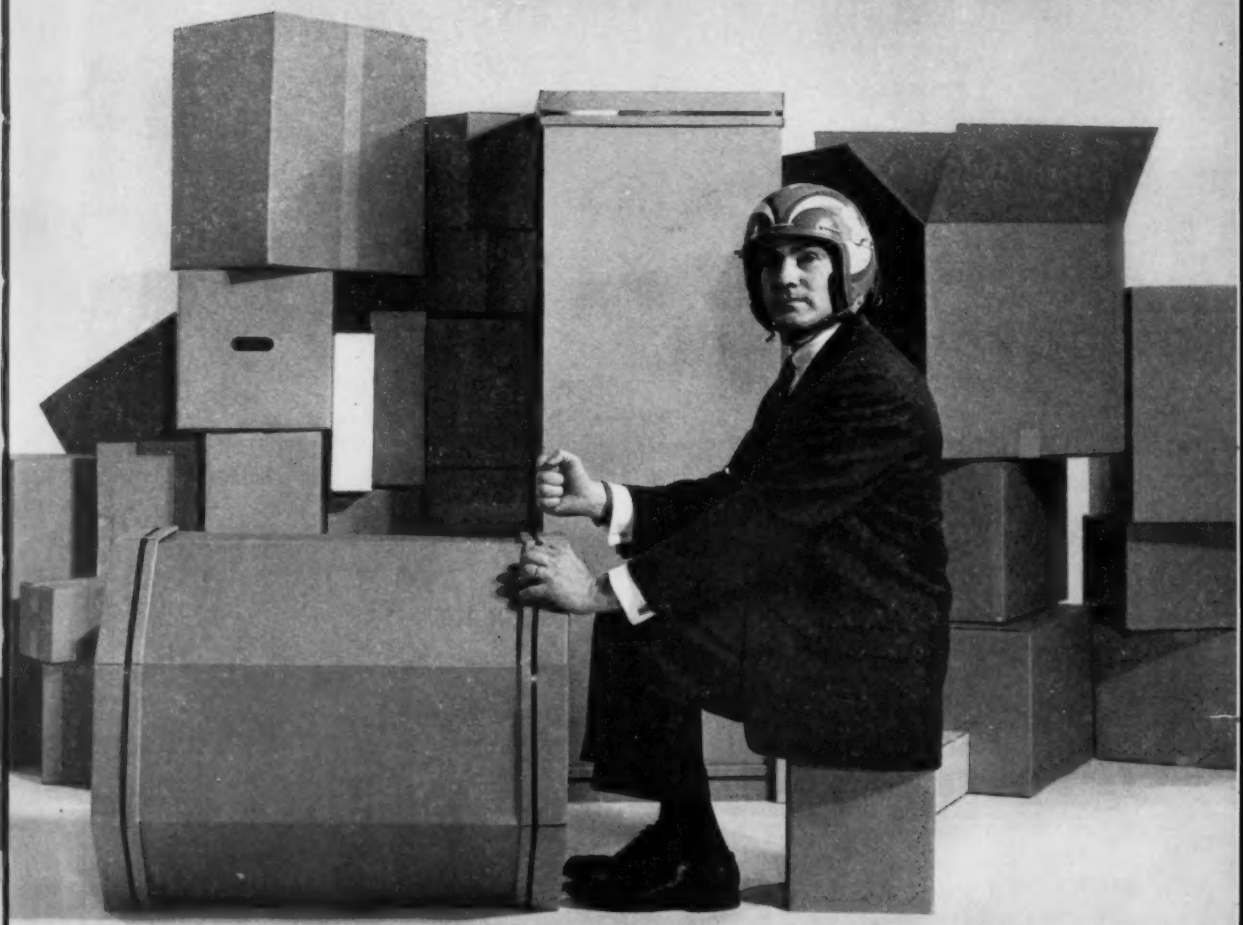
Circle No. 224 on Card

GAYLORD PILOTS YOU
TO JET-AGE PACKAGING

Looking for ways to up-date your packaging procedures? Your Gaylord pilot can help you speed production, increase product protection and improve promotion. At down-to-earth packaging costs.

Precision corrugated boxes by the millions or engineered packaging, Gaylord is skilled in both. Case histories? Roger and over . . . to your G-Man.*

**Your Gaylord Man—of course*



GAYLORD
CONTAINER CORPORATION

Gaylord Boxes

HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST

DIVISION OF **Crown Zellerbach Corporation**

Circle No. 224 on Card

Need a tissue that *twists?*

Here's just one example of many special tissues developed by Crystal to fit customer needs. Strong as a fabric after twisting, this tissue is available in white and colors and can be woven into dozens of unusual convertor products. If you need tissue that can be sewn, laminated to films and foils, impregnated with chemicals, or meet other special requirements, send the coupon below for technical information.

Crystal®

First name in the tissue field for over 60 years

The Crystal Tissue Company, Middletown, Ohio

I want samples and more information on Crystal Tissues for special applications. E958

*Name*_____

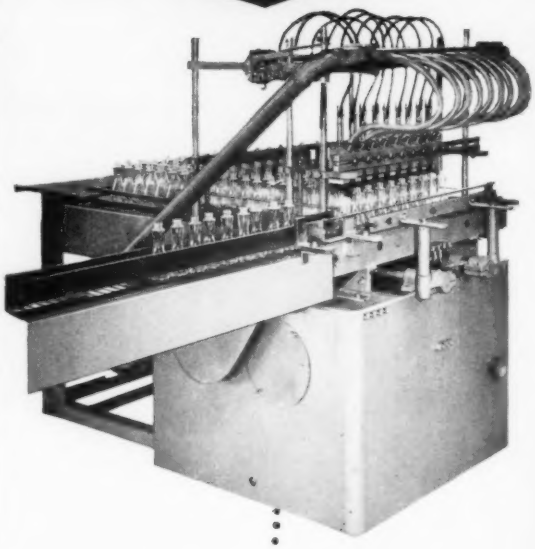
*Title*_____

*Firm Name*_____

*Address*_____

*City*_____ *Zone*____ *State*_____

DOUBLE DUTY: CLEANS & FEEDS!



Double Savings

- **Simplified construction**
- **Less floor space**

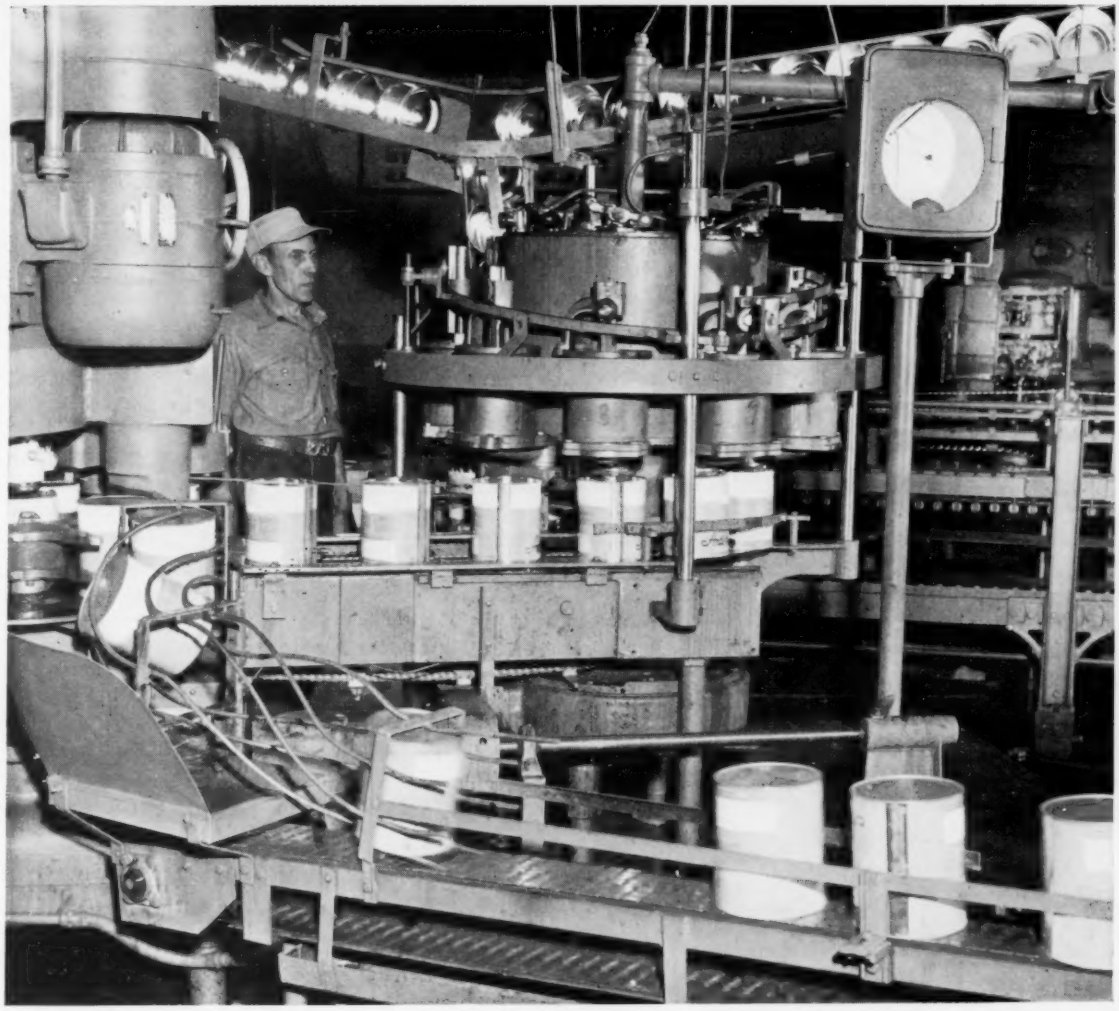
Fewer moving parts and fewer operations to blow out bottles make this M-S machine a model of simplicity. Forethought in design reduces both original cost and upkeep, gives smooth trouble-free performance. Other advantages: quick change-over, accurate synchronization, one operator supervises two operations.

write or wire for full information

MS MACHINERY SERVICE COMPANY

214 Eiler Avenue, Louisville 14, Kentucky

OFFICES IN PRINCIPAL CITIES



Increases plant output 40% with new

VOTATOR® FILLER

The modern plant of Street Industries, Lemay, Missouri, recently converted its antifreeze filling operation from gravity feed to the new VOTATOR* Piston Filler. With the VOTATOR 9-station Piston Filler (Model P9G), these results were obtained:

- **Output was increased from 80 gallon cans per minute to over 120.**
- **Accuracy tolerance is ⅛-ounce in 10 pounds net weight per can.**
- **Costs are being cut further by the filler's unique design features which assure continuous, low-maintenance operation.**

VOTATOR Fillers are available in a wide range of types and sizes for industrial and food products . . . and can be supplied *promptly*. Girdler gives you the benefit of its 30 years' experience in the processing field to assure proper integration of processing and packaging. Write for Bulletin PED 257.

*VOTATOR AND THERMEX – T.M. Reg. U.S. Pat. Off.

GIRDLER PROCESS EQUIPMENT DIVISION
CHEMETRON CORPORATION
Louisville 1, Kentucky
Manufacturers of "VOTATOR" and "THERMEX"* Processing Apparatus
Sales Offices: Louisville • New York • Chicago
Marietta (Georgia) • San Francisco
CHEMETRON

For more information circle No. 227 on Reader Service Card

I CAN SHOW YOU HOW TO PACKAGE ALL *YOUR* PRODUCTS IN POLYETHYLENE *automatically* HAYSSEN CAN DO IT!

Everyone's talking about the advantages of packaging with polyethylene. Superior strength, long durable life, lowest cost of all packaging films are among its features.

To package your products in Poly, you need Hayssen. The plain fact is: Only Hayssen packaging *and* wrapping machines *successfully* handle Polyethylene *automatically.*

Let our experienced Hayssen Packaging Engineers help you "Package in Poly." Contact Hayssen today!

HAYSSEN
MANUFACTURING COMPANY
Dept. PE-9, Sheboygan, Wis.
first in Automatic Packaging Since 1910

specials. To establish the function of, or restrictions upon, present material, size, design, and finish, revert to the records, or obtain the knowledge of those who had made the original selection or specification.

Functions And Restrictions. Function might include product protection, product dispensing, various sales promotional aspects, legal requirements, etc. When evaluating the function of one aspect, such as the basic material, it is quite easy to credit the function to another aspect incorrectly. For instance, the function of an aluminum pour spout on a salt container is accredited to the design, not the material. This point is quite important because it allows a substitution in material more readily if function is not involved.

Caution should be exercised at this point to include only the functions required, *not* the functions which are actually performed by the current item. As an example, present material may effect a five-year shelf life when only two years are required. When listing the functions, be as specific as possible. Be sure to include only those which are *still* required.

Functions might be noted as providing: Three-year shelf life, transparency, superior printing surface, dispensing feature, reduced scuffing, immobilization of tablets, etc. Restrictions imposed on packaging by the legal, sales promotion, and other departments should be noted wherever they are known. A particular aspect may be restricted because of legal reasons; that is, patent principles, shape of product, promotional purposes, etc. The degree of restriction is also important and should be specified if it is known.

Costs To Be Considered. The cost columns in Fig. 2 are for recording the costs resulting from alternates. However, present costs which have already been obtained (Fig. 1) may be included in the worksheet, if desired.

As costs of alternates are obtained, that portion of present costs attributed specifically to the material, the size, etc., will be determined easily. With the inclusion of current specifications, step two is completed.

DETERMINE THE ALTERNATES:

The third step is determining the alternates – substitute ways which will achieve the results obtained with the present package components. If the material is currently made of tin-lined lead, an alternate might be pure tin, aluminum, or some of the various plastics. If the internal coating of a component is phenolic, alternates might be found in epoxy or vinyl types. These are material alternates.

Changing of sizes might include an increase in height and decrease in width to accommodate two layers of six units rather than one layer of twelve. Decreasing the diameter and increasing the length of a cylinder to contain the same volume would be a size alternate. Similar reasoning is applied to the design and finish (including color and printing).

Elimination Of A Component

Wherever possible, include as an alternate the elimination of the component. This may not appear to be possible. However, throughout the evaluation, always consider whether a component might be modified to do its own job plus that of another. This may very well result in a substantial saving through the elimination of one component.

The packaging engineer or the individual responsible for package development should be able to list all of the basic material substitutes commercially available. He probably will be able to produce test results or published information which will indicate the functions of these substitutes. If this information is not available within the company, it can be obtained from the fabricator or the manufacturer of the basic material along with the cost differences.

Once it is known what materi-

als are available, what jobs they can do, and their costs, they can be evaluated for their potential use. Material consideration should not be restricted except as dictated by function, or by a specific restriction already entered on the worksheet. Perhaps a particular material is not being used because serious consideration was never given to it.

Potential Material Alternates

Requirements vary with each company. You are in the best position to determine what materials are potential alternates for the component under consideration. You are probably familiar with most of the raw materials available. However, it is wise to question your suppliers about new materials, particularly in the plastic field.

Some materials may obviously be able to do the job required. In this case, no further investigation is necessary except to determine what your present component would cost if made of these materials. Those which cost less than the present component should be recorded on the worksheet.

Consult Others. Performance of some materials for a certain component may be questionable in your mind. Before running extensive tests, it may be advantageous to check with others in your own organization who might answer your questions. Consult personnel in research, package development, shipping, purchasing, or some other department which has cognizance of packaging. If this does not result in a satisfactory answer, outside sources, such as your suppliers, the manufacturer, or associates in other companies, should prove helpful.

Testing Necessary. As a last resort (if the value of the item in question warrants thorough investigation), it will probably be necessary to prove the function of alternate materials by actual testing. However, rather than perform the test during the value analysis, it is usually beneficial to carry this

RONDO *"the pack with the built-in shock absorber"*

HOLDS and PROTECTS SMALL, DELICATE OBJECTS While Handled in Production, Shipment and Storage

THE UNIQUE FEATURES PROVIDE:

Full advantage of the Rondo features is achieved when the Rondo tray itself is introduced early at the proper place in the production line. Here objects are inserted in the partitioned flutings and are then conveyed in the same unit through the various stages of control, storage, shipment and point-of-sale display.

Objects readily "snap" into the Rondo spring-clip flutes and are held firmly even if turned upside down! The predetermined number of items held by one Rondo tray makes possible a swift, accurate count at any time during the operation. Inspection is fast and efficient because the product is completely visible, which is not existent with other types of partitions where objects are loosely held in an upright position.

Objects are stored in the same Rondo tray even in open stacking to assure quick count for checking or inventory. These filled Rondo trays are then directly packed in cartons for bulk shipping, or slipped into folding boxes for dispatching small units.

In shipment, the shock-absorbing features are fully realized. Each object is actually suspended in a cushion of air and separated from the others by the same means. No padding is needed because Rondo itself virtually eliminates breakage from impact.

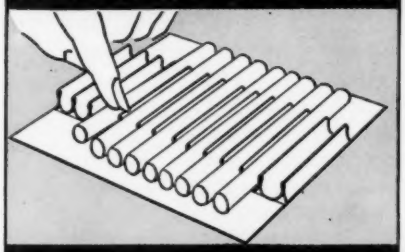
Upon arrival, each object is easily accessible, no time is lost in unwrapping or untangling. The filled Rondo tray may be combined with a decorative folding box, cellophane cover, or without reloading, it can be inserted directly in a point-of-sale display.

RONDO IS A PAPER PRODUCT, SOLD AT PAPER PRICES

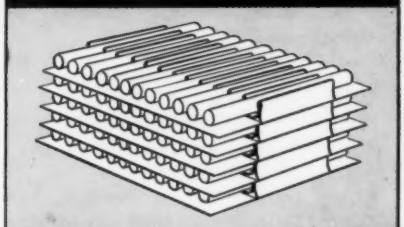
RONDO is successful with: medical ampuls, hypodermic needles and syringes, electronic tubes and components, pen and pen parts, artists' colors and pastels, watches and counting mechanisms, tools, and many others.

Consult us about your possible application of the Rondo method. Present facilities will accommodate objects from 8 to 26mm in diameter. Tooling for larger sizes possible.

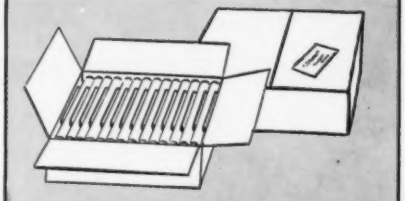
FAST HANDLING IN PRODUCTION



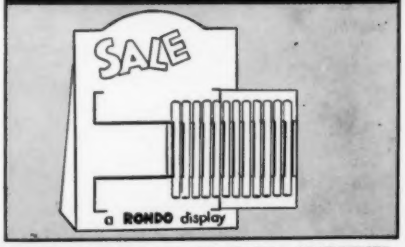
EASY STACKING AND STORAGE



SAFE RIDE IN SHIPMENT



ECONOMICAL USE IN DISPLAY



RONDO PROCESS AND DESIGNS COVERED BY PATENTS IN ALL MAJOR COUNTRIES

RONDO

RECOGNIZED ALL OVER THE WORLD

AMERICAN RONDO CORPORATION

100 P SANFORD ST., HAMDEN 14, CONN.

Representatives: C. S. Shotwell, 527 S. Alexandria Ave., Los Angeles, Cal.
Brown & Scratch, 664 N. Michigan Ave., Chicago, Ill.

item on the worksheet with a question of its functional ability. It should be presented to top management in this form.

If enough interest in the material is shown by management, the necessary tests can then be conducted on this and other items similarly noted. If, for other reasons, an item is not considered, the time required to test that material will not have been wasted.

Achieving Desired Results. When considering alternate materials, those readily available are generally covered quite thoroughly. However, there will be areas where you might improvise to achieve the desired results. Ask yourself the following questions. They might prove helpful:

Can any of the alternates, known to be unsatisfactory, be modified to do the job and still cost less than the present component? *Example*: Where an aluminum tube cannot do the job, can a coating be applied to make the tube satisfactory and still less costly?

Will any of the alternates, either in its present state or with modifications, be able to perform any functions now carried by another component in addition to its own? *Example*: If a support, or a divider, is a piece separate from the box, can it be made as part of the box? This may increase the cost of the box, but decrease the over-all cost, by raising packaging line efficiency.

By use of a more expensive material, can a greater savings be effected through the reduction in mold cost? *Example*: A mold used for manufacturing components from low-pressure polyethylene may differ substantially in cost from an identical one used for butyrate.

Will any of the more expensive alternate materials decrease labor or equipment cost sufficiently to produce an over-all savings? *Example*: By selecting the proper type of paper, the folding and/or inserting of circulars might be attained at increased production speeds, for instance. What do competitive suppliers offer as alternates? *Example*: Where set-up cartons are presently used, what will a folding carton or plastic box offer?

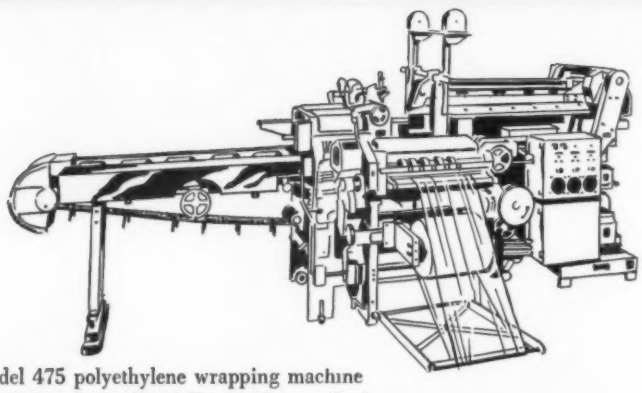
By comparison, it can be determined if any of the alternate basic materials afford potential savings. Those which do should be entered on the worksheet. The questions shown above and those which follow by no means cover all the problems that can and do arise. They are listed to stimulate thought and to provoke similar questions in your mind.

Potential Size Alternates

When evaluating size, it is wise to have the component in view. If the size used currently is special, consider the standard sizes available for like volume, and the cost differences. Questions to ask yourself:

Whether special or standard, can the size be reduced to use less material and still allow the component to carry the required vol-

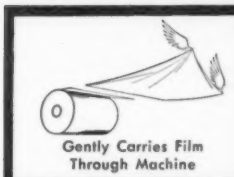
NO NEED TO WAIT! GET POLY*



*The Model 475 polyethylene wrapping machine not only handles conventional films such as cellophane, waxed paper, and laminated foils; — but also the new plastic films including polyethylene in the low, medium and high densities, heat-sealing Mylar, cellulose acetate, Polymer-coated cellophane, Vitafilm, Pliofilm, poly-coated papers, etc.

Now . . . Overwrap At Speeds Up to 65 Per Minute in These Ranges:
4¾" to 12½" Lengths . . . 3" to 8" Widths . . . ½" to 4½" Heights

COMPARE FEATURES AND PERFORMANCE BEFORE BUYING



Gently Carries Film Through Machine

Cut Scoring Provides Convenient Package Opening

Exclusive "Thermo-Pad" Sealing Process Creates "Weld-Tite" Seals

BATTLE CREEK packaging machines, inc. — Continuous Flow PACKAGING

100 TWELFTH STREET
BATTLE CREEK, MICHIGAN

ume of product? At times a standard can be more costly than a special which could be designed to use less material. Possibly the proportion of the component shape can be altered to reduce material, yet maintain the proper volume. *Example*: A standard item has been used for a long period of time and the sales volume of the product has increased. In such instance, it may be possible to design the component to the exact size you require, with a decrease in material and, subsequently, in cost.

Can the size be increased to handle multiple units? This usually applies to inner packing and shipping containers. *Example*: A typical one would be to increase from a half-dozen pack to a one-dozen pack.

Are components standardized by size as much as possible? This enables combination runs by the supplier; also, less set-up and changeover time and parts for packaging equipment. *Example*: In some instances, it would be more economical to use the same bottle for several tablet products, adjusting fill differences by adding or subtracting the amount of coton used for stuffing. This would also allow one size for the labels.

What would be the result if the product were packaged in a different position? *Example*: Vertical rather than horizontal, etc.

Any alternates which result in a potential savings should be plotted on the worksheet.

Design Alternates

Many of the questions already discussed will generally apply to design as they have to material and size. Design, as referred to in this evaluation, is restricted to functional design or the technical aspects of design. These questions concerning design should be helpful:

Is the design performing the function originally intended? *Example*: Where a full support is used, as in a shipping container, will a partial support do as well and cost less?

Are similar designs available as standard stock items? Bottles and caps are usually available in many assorted sizes and designs. Can a similar design be achieved without the complications or details of the present? Intricate designs often cause unnecessarily high scrap, and labor and material charges.

Is it possible to maintain external design and economize internally? *Example*: When a two- (or more) piece container is ordered, one piece of which requires a special board, both may be made of the same (more expensive) board. This may be necessary in small volume runs, but: as a precaution, should be reviewed periodically as volume increases.

Plot any alternates which result in potential savings.

Alternate Finishes

Finish should be subjected to most of the questions already given. In addition to the natural

OVERWRAPPING SAVINGS NOW!

THE MODEL 475

IS THE MACHINE FOR THE FUTURE!

Select the Model 475 now and automatically anticipate future packaging opportunities. Its wide range gives you great latitude in package sizes for future needs, and because the machine is engineered both for today's regular films and tomorrow's plastic films *(see box), you are assured that your changing merchandising requirements have been anticipated. BATTLE CREEK LOOKS TO YOUR FUTURE.

IS VERSATILE!

Changeover in 15 minutes or less! Its wide range, and ability to fold and seal against a normal end of the package, or to draw the fold underneath and seal against the bottom, offers wide versatility in designing future packages for use on this all-purpose machine.

GIVES ALMOST UNLIMITED FILM CHOICE!

Review the overwraps now handled.* The exclusive "Thermo-Pad" sealing process creates "weld-tite" seals on all these materials. Now choose the film you prefer, and know the Model 475 can give you attractively sealed, economically produced packages.

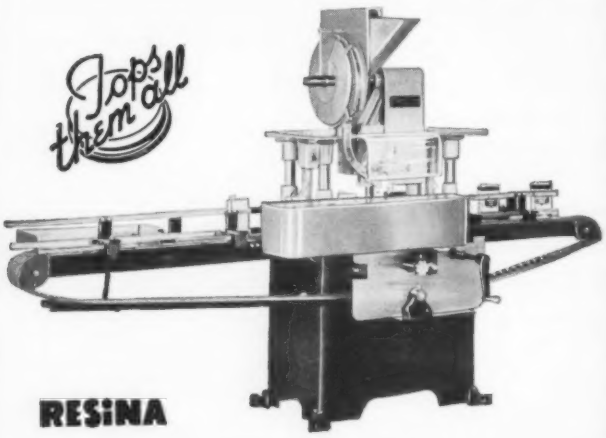
Here is an all new packaging concept . . . an all new machine incorporating the latest electronic and mechanical devices for overwrapping in plastic films. Battle Creek's exclusive "Thermo-Pad" sealing process as well as properly placed static eliminators for controlling the films being handled, are the new key features assuring you trouble-free wrapping at speeds up to 65 packages per minute. Available with choice of infeeds and optional equipment as desired.

PACKAGES LIKE THESE . . . NOW PRODUCED ON FORMER OVERWRAPPING MACHINES CAN BE EFFICIENTLY HANDLED BY THE NEW MODEL 475

Typical applications: textile packages (underwear, handkerchiefs, pillow slips, etc.); paper products such as flat stationery, envelopes, napkins; bakery products, such as hot dog or hamburger buns, large cakes, specialty items; cartons; open top trays.

Battle Creek's Extensive Line of Standard Overwrapping Machines Continues to Serve Packagers Everywhere.

Battle Creek Invites Your Inquiries On Any Overwrapping Problem You May Have . . . On the New Model 475 Or On Standard Machines in Our Line.

RESiNA
CAPPERS
a model for every purpose . . . a speed for every need!
NEW! INNERSEALER
Tops them all

RESiNA
Automatic innerseal machine for selecting and applying standard innerseals to various types and sizes of tin cans as commonly used in the oil industry.
Capacity: 60-120 per minute
Seals from ⅞" to 1½".
AND SPECIAL MACHINERY
Agents in principal cities throughout the United States and Canada.
Write for descriptive literature
RESiNA
AUTOMATIC MACHINERY CO., INC.
Brooklyn 31, New York

finish of materials, also consider finishing processes. Color and printing should be taken into account, too. Review these questions:

Are there any other processes which can produce the present finish at less cost? *Example*: Will a gloss ink produce a satisfactory finish where a varnish is presently applied? Scuffing must be kept in mind, however.

Will a coating produce the finish you want? *Example*: Would a ceramic coating on glass be a substitute for a component made of milk glass?

How many colors are being used? Are any of them similar? Can they be combined?

Are there any special off-whites which will reduce costs if changed to standard white? This change may be accepted where it does not have a great significance.

Can the number of colors used on the component be reduced? Can a halftone be used in place of two colors? Will reverse printing serve the requirements where a separate color is used presently?

Review Worksheet

With the completion of the evaluation, the worksheet should contain all the information immediately available. There will be areas, as mentioned previously, which will require more extensive research or development. These could be in obtaining accurate costs, placing materials under test, or having samples made up where a visual decision must be made. It may be advisable to summarize the evaluation in its present state to determine if there is sufficient interest to devote the time and/or expense (if substantial) to the required tests and samples.

THE PRESENTATION:

The final step, and an important one, is preparing the presentation. The title page might state, "Potential Savings," "Cost Reduction Possibilities," or any number of other

descriptive titles which indicate a saving is involved.

In order to obtain better acceptance and direction from top management, a thorough explanation of the purpose and the objective of the presentation should follow the title page. Within this section, state also the facts, when necessary, that certain tests must be performed on some materials to verify performance; that samples and costs can be obtained; but, that time and/or expense will be involved to complete such tests, etc.

Simplify The Presentation

The actual presentation can be grouped by products, component parts, value; or in groups separating those which are complete, those which require further tests, and those requiring samples. In order to simplify the presentation, a minimum of three factors must be stated, namely:

The change.

The result caused by the change.

The potential savings broken down.

In the following example, a potential saving is being presented through the elimination of a circular currently being placed inside a package. The copy on the circular would be printed on the carton. This is a presentation of alternate No. 5, under "Finish," Fig. 2. Note its simplicity.

Example:

Products A, E, & M: Eliminate circular and print on carton.

Plate cost: $150.00.

Quality: Reduced slightly.

Savings: ($6.00/M. + $20.00/M. − $2.00/M.) × 500 M. = $12,000.

Sample cost: $20.00.

In the above case, the calculations were made by adding the savings in labor of not having to pack the circulars ($6.00/M.) to the savings in cost of the circulars eliminated ($20.00/M.). The resultant sum is the gross savings for one thousand packages. From this sum, the additional cost of incorporating the printing on the box ($2.00/M.) must be subtracted. The difference, $24.00, is the net savings per one thousand packages. This figure is then multiplied by the annual usage (500 M. packages) to give the net potential annual savings of $12,000.

Use Illustrations

Following each page of potential savings, mounted samples of the proposed changes might be included for a more complete understanding by the reader. The last page, or pages, of the booklet can contain a listing indicating the total potential savings resulting from all the components evaluated.

The time necessary to complete a thorough value analysis depends obviously on the number of items covered and the extent to which the evaluation is carried. However, upon completion, your company may effect substantial savings, and can be confident that it is receiving the maximum return for the investment in its packaging operations. (*End*)

HIGH-FREQUENCY ELECTRONICS

in package sealing

Co-patenters of hi-speed aluminum foil sealing for heat sensitive materials (check details with Milprint).

•

Induction and dielectric units for polyethylene, mylar, nylon, etc.

•

Simple — trouble-free — ultra fast electronic equipment.

New methods = New dollars for you

WRITE

Radio Frequency Co., Inc.

MEDFIELD, MASS.

PHONE—BOSTON, NOrwood 7-4900

Circle No. 232 on Card

king GLUERS are used by ORTHO everywhere

ORTHO
California Spray-Chemical Corporation
Lucas Street & Ortho Way · Richmond, California
August 2, 1957
King Sales and Engineering Company
441 Folsom Street
San Francisco 5, California
Gentlemen:
We have over 70 King Gluers in use in our manufacturing plants throughout the United States, Canada, Mexico and Puerto Rico. We started using them about 1946 and have adopted them as standard equipment.
We tried out other machines, which were excellent, but had some weaknesses which caused them to be unsatisfactory in overall performance by comparison. We have stuck to the King because they contribute to an economy in standardization, and they are efficient and reliable.
We use your Gluers for a variety of operations. The principal use is for gumming bag labels. They are also used for labeling certain carton cases, and for drums.
Very truly yours,

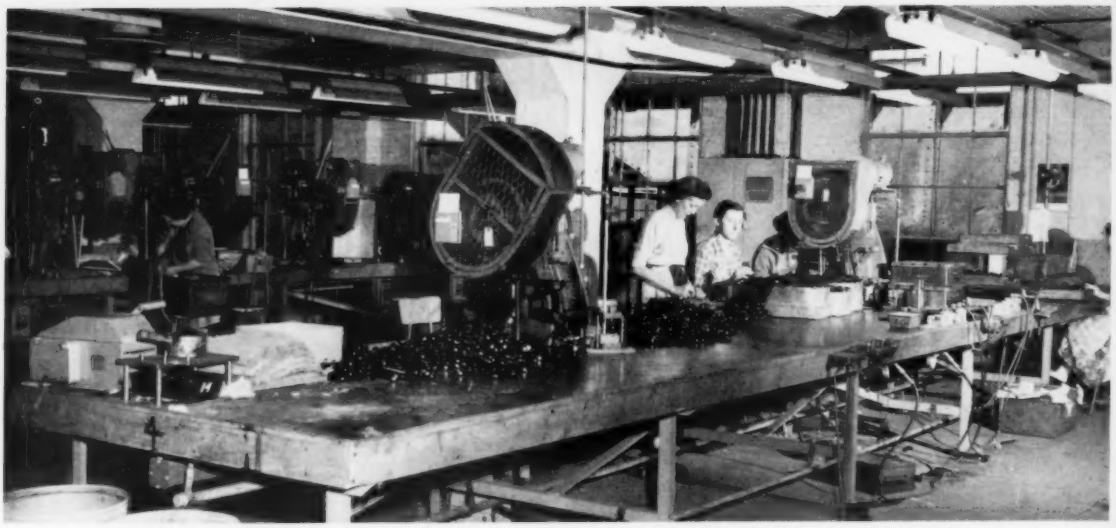
✓ TRUE PORTABILITY
✓ POSITIVE CONTROL
✓ EASIEST CLEANING

✓ ECONOMICAL
✓ VERSATILE
✓ EFFICIENT

Best for all manual labeling — shipping — mailing

See your King dealer. Write for details.

king SALES AND ENGINEERING CO.
441 FOLSOM STREET SAN FRANCISCO 5



Packaging stations along table spot products and materials within workers' reach.

Getting wrap effectiveness without actual wrapping

By Walter A. Pisarski,
Packaging Engineer,
Stewart-Warner Corporation,
Chicago

A search to find the features of a wrapped package without requiring an actual wrapping operation led to creped cellulose wadding. Resting in layers between this material, small automotive parts ride intact as though wrapped. Reviewing the development of this packaging method, Mr. Pisarski explains the decompressing process, relates it to the packaging operation, and tells how to attain wrapped characteristics without wrapping. He also tells how to determine the requirements for a corrugated box holding these automotive parts by means of the Forest Products Laboratory box strength calculator. All this saves as much as four to five dollars per 1,000 items—as against former packaging costs.

By using layers of decompressed, creped cellulose wadding, we now give small automotive and specialty hardware items the protection of a wrapped package without actually having to wrap them. Combining this package with an economical design of corrugated box gives us peak strength at lowest cost. Our search for more effective, less expensive packaging has paid off: We now save as much as $4.97 per 1,000 items under our present method, as compared to former packaging used.

Typical items involved in this project are barrel-type hood catches and direct pull fasteners. Most of these go to original equipment manufacturers, such as automobile makers, although some move to distributors. Typical quantities are 200 pieces to a container.

These items are sturdy enough in themselves, but all require protection of their finish. This is quite vulnerable and most of our previous packaging damage involved the finish of the parts packaged. At the start of this project, we considered a wrapping operation ideal. However, costs of such packaging seemed prohibitive, so we turned to other means.

We tried various indented papers, as well as chipboard indented

Circle No. 234 on Card I

PRIDE OF PRODUCT / *An American Tradition*

You put pride in your product...so does FROSTKRAFT. Our product is *packaging*. Any product that needs *kraft* deserves FROSTKRAFT.

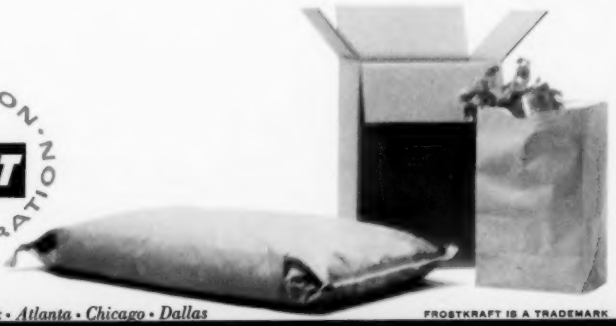
CORRUGATED CONTAINERS

STANDARD AND SPECIALTY BAGS

MULTIWALL SHIPPING SACKS

OLIN MATHIESON CHEMICAL CORPORATION

FROSTKRAFT

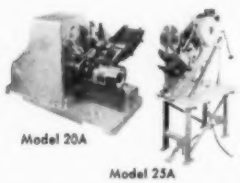


Forest Products Division, West Monroe, La. • District Sales Offices: New York • Atlanta • Chicago • Dallas

FROSTKRAFT IS A TRADEMARK

Get better looking, lower cost package identification and decoration with a MARKEM METHOD

Hand stamping, using decals, stenciling — such methods can not only reduce the attractiveness and sales appeal of your package, but consume valuable time as well. "Outside printing" requires large inventories . . . causes waste from obsolescence . . . can result in production delays as well. The time and money saving way around these obstacles — with added quality besides — is a Markem Method working in your plant. This is a combination of the right *machine, type* and *specialty ink* to *identify* or *decorate your packages* at the *rate you need, as you need them.* Whether you want to screen decorate designs on molded plastics . . . print pressure sensitive tape with product name, trademark and directions for use . . . imprint variables on bakery labels, set-up or flat folding boxes, lithographed cans or lids — there's Markem equipment and a proven method for the job. The two machines shown are typical of more than a dozen used in the packaging field; type-wheels, or masterplates and typebars, make imprint changes fast, easy; 10,000 currently available specialty inks offer virtually any combination of color, drying speed and special property you want. In many cases, Unitized Markem printing heads can be combined with packaging equipment.



Model 20A

Model 25A

Ask Markem for specific recommendations to meet *your* identification and decoration marking needs. Nearly 50 years of experience — in all industries — and a single source for the *whole* answer, stand behind every Markem quote. Write Markem Machine Co., Keene 35, New Hampshire.

MARKEM

EVERYTHING INDUSTRY NEEDS . . . FOR PROFITABLE MARKING . . . SINCE 1911

paper, but these did not work. The items would not nest properly on the paper. We also tried laminated indented kraft and got similar results. We tried single-faced corrugated, as well as a solid flute corrugated material (having the characteristics of molded pulp), but did not find our answer.

Search For Wadding

Experimentation with cotton wadding and various creped papers proved equally fruitless. A major object of our search was to find a packaging material that could be used in layers or tiers. We wanted the manufactured parts to rest or secure themselves intact between the layers of material. Our plan was to build up successive layers within each box.

Deciding that a cushioning material which would conform to the product was necessary, we turned to Kimpak creped cellulose wadding. Trials with it (conducted in the same manner as trials with other materials) proved satisfactory. The reason for this success is that the material conforms to the surfaces of the parts being packaged. Initially, an operator decompressed the material by hand. This was not satisfactory because it was giving us a varying decompression of 30 to 50 per cent. Inability to get consistent manual decompressing led us to use a decompressing tool. We established 65 to 70 per cent decompression as our standard. We did not seek full decompression because we wanted a compressive buffer or reserve within the package itself.

Decompression Of Material

We have two types of decompression tools. One type does not have a positive setting, but is adjustable by means of a thumb screw. The other has a positive setting (with a dial) to determine the amount of opening between the rolls. With either unit, there are two stationary horizontal rolls. The wadding is pulled through the opening between them. The

Walter A. Pisarski has been with Stewart-Warner Corporation 15 years. Before becoming head of the packaging department in 1952, he was engaged in production control and expediting work. He is a professional member of the Society of Industrial Packaging and Materials Handling Engineers, and participates in the activities of American Management Association. His packaging education includes work at Illinois Institute of Technology, Rossford Ordnance School, Purdue University.

amount of the opening or gap governs the decompression obtained. The principle is to compress the material to such a degree as to regulate the resulting decompression on a friction basis.

We have installed a holder for the rolls of material as received from the supplier. Each roll is shafted, then positioned so it rotates freely as the operator pulls it through the decompression tool. As she pulls it through, a resistance is created so that the material opens up or expands when pulled all the way through.

Effect Of Decompression

This expansion is longitudinal. The gap between the rolls governs the stretch, and hence, the decompression. As the operator pulls the material through the rolls, it stretches to the percentage of decompression calculated. Maximum decompression is five times the compressed state of the material.

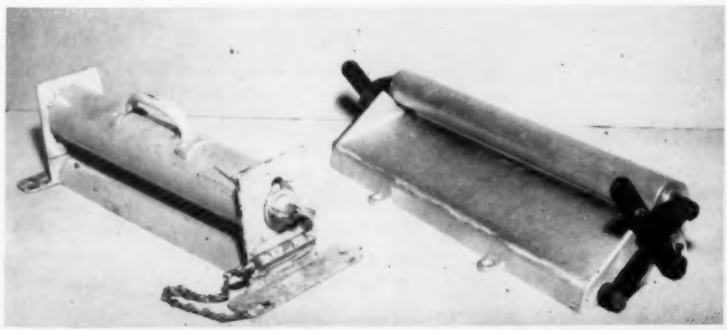
In practice, the operator pulls out a workable length of material, then cuts it free of the roll. Such a length is between 35 and 40 feet. Each of our rolls holds 145 lineal feet of material (when expanded) and is compressed to 1/5 of its volume. This gives us a roll 16 in. in diameter, 12-3/4 in. wide, containing 154 sq. ft. of material.

Once the operator has such a reasonable length of material (40 feet), she cuts it free of the roll, then prepares to cut it into individual pieces. It would be physically difficult and unwieldy to decompress an entire roll of material at one time.

Layout Of Station

This is the first stage of the packaging operation. Because of the wide variety of parts and the varying volume of runs, we handle this as a bench type operation rather than as a progressive packaging line. One operator or attendant does the entire packaging work—from counting out the quantity of parts to be packaged to closing and taping the loaded boxes. We position the equipment so that each station is in effect a self-contained, one-girl packaging line with all equipment and supplies within easy reach. This eliminates excessive walking to get materials or packaging components.

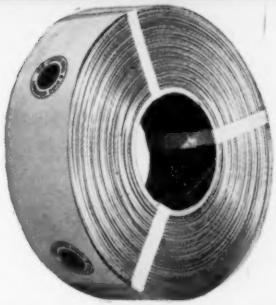
In laying out a packaging station for a one-girl type of operation such as we use, it is important to have adequate space. Our decompressing tool and the reel for hold-



Two decompression tools: Unit at left lacks positive setting, but adjusts by thumb screw; tool at right has positive setting (with dial) to determine opening between rolls. Both units use two stationary, horizontal rolls.

Get high-speed, uninterrupted stitching with

MID-STATES



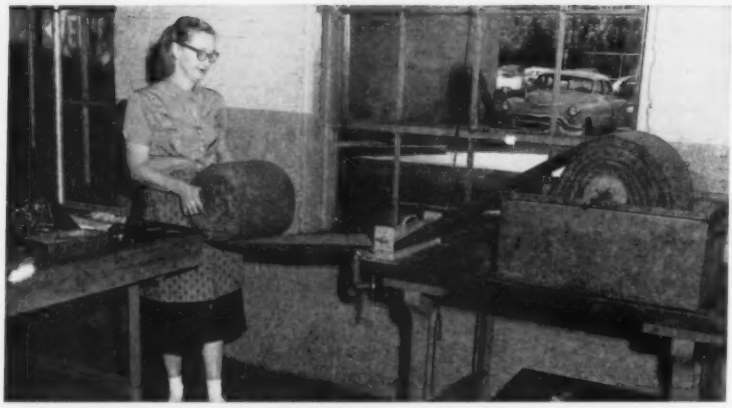
For faster, less expensive production and packaging, count on Mid-States—a leader for over half a century. Across the nation Mid-States is known for consistent high product quality and cost-cutting know-how.

Mid-States Stitching Wire gives you frictionless, uniformly smooth flow—off the coil and through the stitching head—to assure high-speed, uninterrupted operation.

Available in 5, 10, 25 and 50 lb. coils. All standard gauges. Special gauges on request. Galvanized and copper-coated finishes.

Mid-States Stitching and Tying Machines—a complete line of cost-savers to serve every packaging requirement . . . Write for further details and prices.

MID-STATES
STEEL & WIRE COMPANY
Crawfordsville, Indiana
Jacksonville, Florida



As she pulls wadding through decompression tool (rewinding it for convenient handling), it stretches to 65-70 per cent decompression. Gap between rolls governs stretch—hence, decompression. Use of tool assures uniform decompression.

After decompressing and rewinding workable length of wadding, she cuts it into individual pieces. These 14 in. lengths of 12-1/2 in. wadding match box dimensions. After cutting, she separates each 3/4 in. piece into three 1/4 in. thick pieces.

Using modified spill-placement technique, she builds layer of parts on wadding. Material conforms to parts packaged because of per cent stretch still remaining after decompression. This gives protection of wrap without actual wrapping.

ing rolls of wadding prior to decompression are parallel to a wall. This gives a girl adequate room in which to work as she pulls out the material. Such lineal space is necessary because she has to back away from the decompression tool as she pulls out and winds up the material.

To serve the main packing bench where the parts are actually packaged, we provided a portable packing station mounted on casters. This unit holds two tape dispensers, plus case stenciling, ink brush, etc., and other components. It can be wheeled about as needed.

Cutting The Wadding

After cutting the decompressed material from the roll, the operator next cuts it into 14 in. lengths, using a spring-loaded paper cutter. With a spring-loaded cutter, the knife rises when released. This prevents it from dropping on an operator's hand or finger. Thickness of the decompressed material precludes having a safety guard over the cutter and the spring-loaded knife furnishes similar protection.

These 14 in. lengths of 12-1/2 in. wadding coincide with box dimensions. It is not necessary to provide additional lengths to compensate for the draw of the wadding caused by parts when placed on the material because there is a 30 to 35 per cent further expansion of the material available. Cutting pieces to case size works satisfactorily.

Before using the cut pieces, the operator separates each piece (3/4 in. thick) into three pieces, each 1/4 in. thick. Even after decompression, the material is still 3/4 in. thick on an average.

Preparing to package a box of automotive hardware, the attendant precounts 200 pieces (or whatever other number is being packaged). After getting the number of parts for one box, she divides them into seven groups of approximately equal number of parts. One group goes on each layer. She thus has about 25 to 30 items for each layer. Exact count is immaterial.

The important point is to spread these out properly on the wadding.

Method Of Packaging

She uses a modified spill-placement technique to position the items on each layer of material in the box. She makes sure all parts are in contact with wadding only and are not piled metal on metal. After building up a box load of seven layers, she places one piece of wadding on top of the top layer of parts, then closes the box.

Because of the nature of the wadding and the per cent stretch still available, it conforms to the parts packaged. Each layer, whether above or below the part, conforms to the parts it touches. In other words, each piece conforms to the top of the parts on which it rests and conforms to the bottoms of the parts resting on it.

To close each corrugated box, the attendant uses six strips of 3/4 in. wide, 8 in. long pressure-sensitive rayon filament tape. We buy this tape 1-1/2 in. wide and use a dispenser equipped with a slitter. Thus for each pull, the dispenser gives two, rather than one, length of tape. Closing is in accord with the rules of the Uniform Freight Classification.

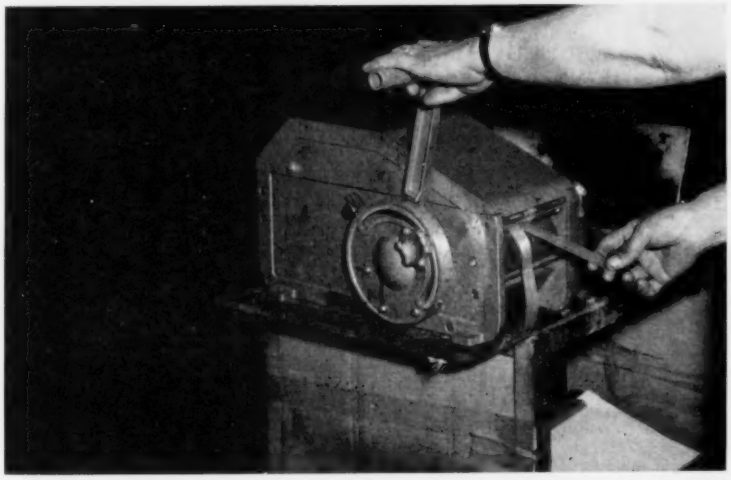
Details Of Box

These corrugated boxes are full telescope, 14in.×12in.×7-1/2in. This style and specification replaces a box 11in.×11in.×5in. that we used previously. These full two-piece telescope boxes use 275-lb. test board, A or C flute. Box walls consist of 90-lb. kraft, 26-lb. straw or kraft, and 42-lb. kraft.

We chose the full telescope box to get adequate compressive strength. Also, these had to withstand a stacking load up to 10 feet. While actual net weight may run as low as 50 to 60 lbs., we calculated our boxes on a basis of 70 lbs.

In determining box requirements, we used the figure of 70 lbs. per box, 12 boxes high. This indicated

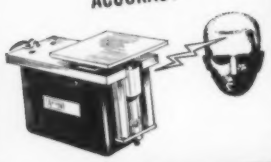
Completing layer of parts, she places next sheet of wadding on top. Then she builds next layer of parts. Each layer (above or below parts) conforms to parts it touches. Parts' finish is vulnerable, thus needing protection in package.



Tape dispenser equipped with slitter cuts 1-1/2 in. wide tape into two 3/4 in. wide pieces at moment of dispensing. Each corrugated box of parts gets six strips of 8 in. long pressure sensitive rayon filament tape.

Stenciling proper identification completes individual package. Use of full telescope box (14in.×12in.×7-1/2in.) provides enough compressive strength to withstand stacking load to 10 ft. Box walls use 275-lb. test board, A or C flute.

CHASING
TARE WEIGHTS?
•
THEN SPECIFY
A SELF-TARING FILLER
with
AVION
WEIGHT CONTROLS
for
HIGH SPEED
and
ACCURACY



AVION
acf
AVION
DIVISION
acf INDUSTRIES
INCORPORATED
11 Park Place, Paramus, N. J.

Circle No. 237 on Card

Need another copy of this article?

As long as our supply lasts, we'll send you, with our compliments, an extra copy of Mr. Pisarski's article—or any other article in this issue. All you need to do is write us on your letterhead, specifying the article you want.

840 lbs. Deducting 70 lbs. for the weight of the bottom box, a figure of 770 lbs. represents the total weight resting on the bottom box. We chose a figure of 100 days storage duration, depending on compressive strength of 1,400 lbs.

Using The Calculator

We made our calculations with the Box Strength Calculator developed by the Forest Products Laboratory of the U. S. Department of Agriculture. (1) The calculation of 14 per cent relative humidity represents warehouse storage condition. To allow a safety factor, we computed our requirements according to laboratory conditions indicating 9.5 per cent relative humidity. This gave us a load calculated at 1,925 lbs. Next we added a 20 per cent safety factor, making a compressive strength of 2,310 lbs.

From our calculator, we determined a component crushing strength of 100 lbs. per inch length of board. Taking an A flute, 275-lb. test board, we have a factor of 0.059, which came to 51 lbs. per inch length of board. This told us that we needed two wall thicknesses. With 51 lbs. as a factor, we thus arrived at 102 lbs., and thus had an extra factor of 2 lbs. present there.

Obviously, we wanted these two walls perpendicular to the load in

The **SEALTITE SYNCHROMATIC**

Produces a BETTER PACKAGE from a Standard Paper Bag at Big Savings

Write for Complete Information

CONSOLIDATED PACKAGING MACHINERY CORP.
BUFFALO 13, N.Y.

order to support stacked cases. This suggested the special advantage of a two-piece full telescope box. It gives a second wall and provides it where needed. It represents a distinct saving of corrugated in the aggregate, as compared to using a box such as an RSC—that would give us double wall strength horizontally and thus at points where not needed.

Savings Attained

The cost savings attained proved the effectiveness of our packaging operation. Taking two typical parts (the barrel-type hood catches and the direct pull fasteners), we had a cost of $7.95 per 1,000 pieces in the standard carton—our old method. We now get a cost of $4.38 per 1,000 pieces with our new package. This provides a savings of $3.57.

A further savings in labor and factory burden represents $0.42 on one item and $1.40 on the other. This indicates a total savings per 1,000 items of $3.99 for one and $4.97 for the other. These savings are representative.

Reference

1. Basic Design Data for the Use of Fibreboard in Shipping Containers. Box Strength Calculator, Report No. R-1911-A, December 1952. This report is one of a series issued (in cooperation with the Quartermaster Food and Container Institute for the Armed Forces) by Forest Products Laboratory of the U. S. Department of Agriculture Forest Service in cooperation with the University of Wisconsin, Madison, Wisconsin. Authors of the report are K. Q. Kellicutt, engineer, and E. F. Landt, and V. C. Setterholm, technologists, all of Forest Products Laboratory. Their report tells how to make the tests and suggests the use of the calculator. It also contains the discs and details with which to make the calculator. The report includes a bibliography. *(End)*

OOPS! SOMETHING'S WRONG HERE

PUT the cart before the horse and you have real trouble. Use a package without first pre-testing with instrumentation brings the same result.

Successful packaging engineers field test the product they must package to determine actual handling and transportation conditions with Impact-O-Graph. Knowing the degree of the shocks, the number of the shocks and the direction of the shocks enables one to engineer a package, thus eliminating costly guesswork which results in either over-packaging or underpackaging.

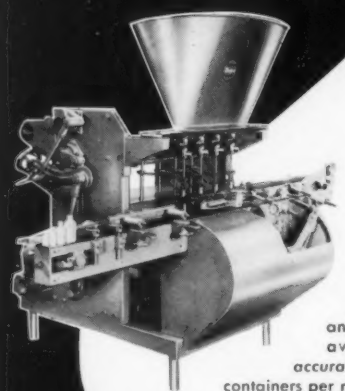
And it's National Safe Transit-approved.

THE IMPACT-O-GRAPH CORP.

1900 EUCLID AVE. • CLEVELAND 15, OHIO

Circle No. 239 on Card

VERSATILE • ACCURATE
MULTI-LINE FILLER



ESTABLISHED Hope SINCE 1908

TYPE 19A

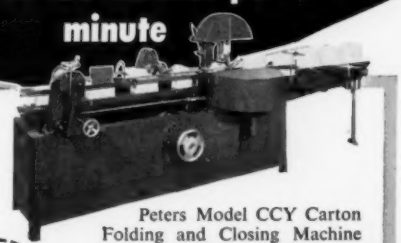
The 4 line model accurately fills 50 to 100 containers per minute . . . 6, 8, and 10 line models also available capable of *accurately* filling up to 250 containers per minute. Hope Type 19A Filling Machines are now in *profitable* use from coast-to-coast, filling liquids, semi-liquids, or viscous products in jars, plastic bottles or tin cans. For high speed, accurate filling machines look to the leader—

Write for catalog of our complete line

HOPE MACHINE COMPANY
9400-80 STATE ROAD • PHILA. 14, PA.

For more information circle No. 240 on Card

Peters
Model CCY Carton Folding & Closing Machine
automatically closes
up to 150 cartons per
minute



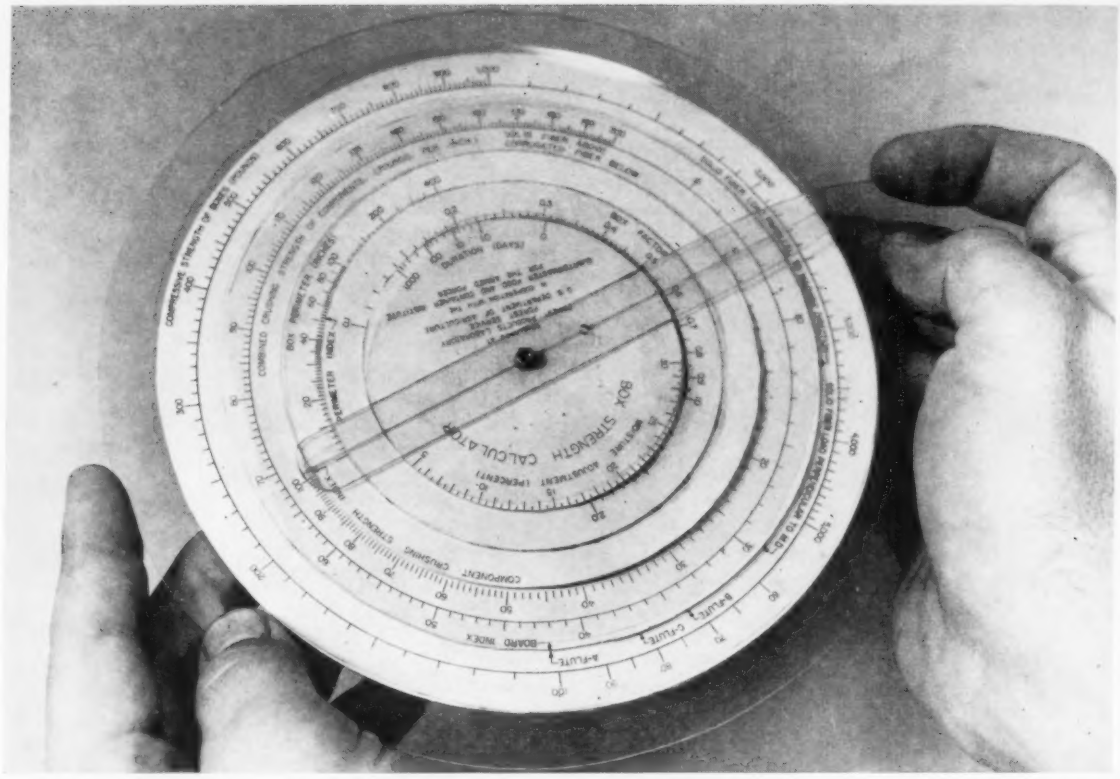
Let our engineers show you how Peters can help you do a better job faster—and at lower cost!

Peters Model CCY Carton Folding and Closing Machine automatically folds and closes unlined cartons. Model CCY-L closes lined cartons. Carton size range: 3½" x 2" x 1 3/16" up to 12¾" x 7" x 4½". Write for colorful catalog of Peters diversified line of high-speed packaging machines.

For 60 years originators and builders of high speed automatic packaging and bakery machines.

Peters
MACHINERY COMPANY
4702 Ravenswood Ave., Chicago 40, Ill.
All Phones: LOngbeach 1-9000

For more information circle No. 241 on Card



Merely turning dials saves time (without loss of accuracy) in making box strength computations. FPL experts found way to predict top-to-bottom compressive strength once they had test values of board components.

Using a calculator to compute box strength

In his article appearing elsewhere in this issue, Walter Pisarski, Stewart-Warner Corporation's packaging engineer, refers to the Forest Products Laboratory box strength calculator. Here is a review of what this calculator accomplishes and just how it works. Full details of it, including component parts of the calculator and specimen calculations, appear in a report available from the Forest Products Laboratory.

Development of the box strength calculator, to which Mr. Pisarski refers on page 52, goes back to 1951. At that time, the Forest Products Laboratory published its report No. D-1911, which exhaustively discusses the use of ring crush values of paperboard. Its engineers and technicians sought to get a single test value for each liner and the corrugating medium. These are then combined into a value representing all three of the component sheets of the built-up board. From this they developed a way of predicting the top-to-bottom compressive strength of any size box made from that board.

Next they simplified the method of predicting strength by developing an alignment chart for each flute. Also, they established a relationship between compressive strength and moisture content of

the fibreboard box. This information, too, went into the form of an alignment chart.

As a means of conveniently manipulating the charts, the experts at FPL rearranged the information (as developed in report No. D-1911) into circular form. This made possible the set of relating disks used in the box strength calculator. Upon developing this calculator, the FPL issued its report No. R1911-A. This contains the basic design data, sample calculations, and actual boxboard members with which to construct a box strength calculator.

Know Ring Crush Load

One thing a packaging engineer must know in order to compute with the calculator the total compressive strength of his box in pounds is the composite ring crush load of the built-up board. Normally a packaging engineer has this information. If he does not, he can usually get it from his box suppliers.

With the board index pointer aligned with the appropriate flute, and the component crushing strength index set for the composite ring crush load, he then notes the perimeter index in inches. This means taking two lengths and two widths so that all four dimensions of the box add up to X inches. He then locates this figure on the appropriate dial of the calculator.

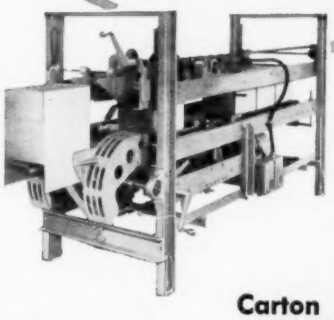
On the back of this dial the box factors are listed. For example, for B-flute, the factor is 0.68. A user then takes the plastic indicator or other device that contains the hairline used in the calculator and orients it with "0.68" on the box factor line.

Now he follows this line out to the outer circumference and reads the total compressive strength on the top line. At this point, the user has both elements lined up.

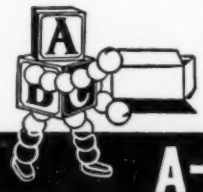
Adjust To Moisture Conditions

These calculations are based on laboratory conditions of 73° F. at 50 per cent relative humidity, in

SHORTER! Narrower!
A-B-C *Junior* Case Sealer
- A REAL COST CUTTER!



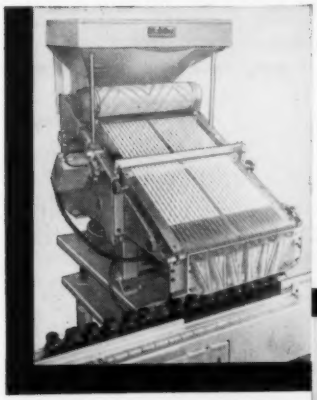
Brings new efficiency to cramped packaging quarters. Fast, automatic, trouble - free. Carton jamming virtually eliminated. Three semi-automatic models fit most case sizes. Write today for details—floor plans and specs.



A-B-C PACKAGING MACHINE CORP.
TARPON SPRINGS, FLORIDA

For more information circle No. 242 on Reader Service Card

Fast Filling and Accurate Count



Lakso "48" Tablet Counter

- For compressed tablets and gelatin capsules
- Fills up to 100 bottles of 100's per min. Other models up to 300 bottles per min.
- Quick changeover
- Floor space only 27" x 42". Height 56"
- No. 53 Conveyor optional

No. 52 Automatic Bottle Cottoning Machine

- Cottons up to 100 bottles per minute
- Extremely flexible to handle wide range of bottles and cotton.

For complete information write

THE Lakso COMPANY, INC.
FITCHBURG, MASSACHUSETTS

Cutting out paperboard disks (furnished with FPL report R1911-A) and mounting them as movable dials gives workable calculator. Hairline indicator not shown above.

which we may assume a 7.5 per cent moisture in the board will be attained. The inner circle of the calculator has a moisture adjuster with which the strength for other moisture contents can be estimated.

The user then moves the indicator to the percentage of moisture he wishes to take, for example, 20 per cent. He then reads the compressive strength (taking a random example) as being "443," compared to "1080" for this particular flute at 7.5 per cent moisture.

How Much Load?

He now has the problem of finding how much load the box will support in storage. To do so, he takes his figure of "443" and moves the "duration days" indicator to zero. He holds his dial (now fixed at zero—for "duration days") and moves the calculator to the number of days storage. For example, at 100 days' storage, his factor of "443" becomes "242" at 20 per cent moisture. This means the box will fail at 242 lbs. All of these statements and figures are in terms of failure load.

Result of this is that he can stack, for example, his 50 lb. boxes five boxes high. The bottom box thus is supporting 200 lbs. There is not enough support for an additional box because his failure load is 242 lbs.

Compute In Reverse

An engineer may desire to do

Ring-crush, strip-column, compression tests important in box calculator development

Its ring-crush test involved testing 1/2 × 6 in. strips of paperboard formed into a ring in a metal specimen holder. One of several removable islands supported these strips on the inner surface. Thus the paperboard column 1/4 in. high extended above the holder. Choice of island depended on the thickness of the board. Upon crushing the strips thus supported in a testing machine, the FPL experts got a single value—that of maximum load.

They cut specimens so that crushing load was applied parallel to either the "with-machine" or "across-machine" direction of the board. They tested both liner boards and corrugating mediums this way.

A strip-column test was used essentially for the components of solid fibre boxes. Test specimens were the same size and cut by the specimen cutter used in making the ring-crush specimens. Strips were held straight between two clamp supports. This provided a column 1/8 in. high. Just as in the ring-crush test, they obtained a single value (maximum load).

In making compression tests of boxes, the FPL used a universal testing machine, equipped with a mechanism for making an autographic load-compression curve on each test. Prior to testing they conditioned the specimens in an atmosphere maintained at 75° F. at 64 per cent relative humidity.

Evaluating the simple ring-crush tests and the strip-column test by a more precise test (modified ring-crush test), the FPL experts worked the test values into a formula which led to development of the box strength calculator.

You can get these reports

Readers desiring reports D1911 and R1911-A may have them for the asking. These are available from Forest Products Laboratory, United States Department of Agriculture, Forest Service, Madison 5, Wisconsin.

all this computation in reverse. He may start with specific requirements (such as moisture, days of storage, etc.) and work back to the compressive strength. Upon attaining these values, he then can select his box components accordingly.

All this grew out of the FPL's development of a design formula. This appears in Report No. R1911-A. Efforts to simplify the use of this formula inspired the development of alignment charts and hence of the circular arrangement inherent in the box calculator itself.

Reference Cited

1. Report No. R1911-A. Basic design data for the use of fibreboard in shipping containers and box strength calculator, by K. Q. Kellicutt, engineer, and E. F. Landt and V. C. Setterholm, technologists, Forest Products Laboratory, Forest Service, U. S. Department of Agriculture, Madison, Wisconsin, December, 1952. (*End*)

POST DECITRON ELECTRONIC PRODUCTS

Post's Miniature Photo-heads solve the problem of mounting a sensing device in a limited area. Hardly larger than a standard paper clip, these photosensitive, semi-conductors may also be used as a reflected beam photohead.

Average light source life is 5,000 hours . . . designed for industrial use. Alignment brackets to insure proper relation of light source and receiver are also available.

Decitron

POST ELECTRONICS

Division of Post Machinery Co. | 163 Elliott St., Beverly, Mass.

For more information circle No. 245 on Reader Service Card

NOW . . .

MULTIPLE PACKETER **MODEL II**

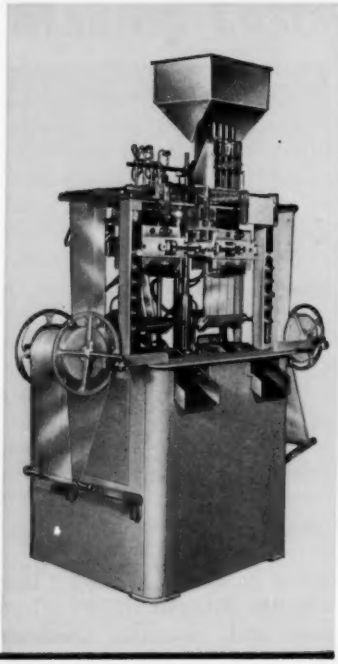
FOR BOTH LIQUIDS AND POWDERS

Completely Automatic production of up to 300 packets per minute. Interchangeable for ALL POWDER OPERATION — ALL LIQUID OPERATION — SIMULTANEOUS LIQUID AND POWDER OPERATION.

Produces up to 8 packets simultaneously. Packet sizes are variable from 1" x 1" to 8" x 8". The BFM Multiple Packeter forms, fills and heat seals — on all sides of the packet — from a continuous roll of heat-sealing material. A complete range of papers, foils, films and laminates can be handled, with electric eye registration of the printed material on both sides of the packet. Packets can be delivered in perforated strips *or* joined *or* individually.

POWDERS — Highly accurate volumetric or auger feeders for all free-flowing, granular and hygroscopic powders. Two different powders can be inserted into each packet. Hoppers can be divided for mixed filling.

LIQUIDS — The Multiple Packeter handles all free-flowing, viscous and semi-viscous liquids. Reverse vacuum design prevents stringers and leakers. Moyno or piston pumps available.



MODEL II showing simultaneous liquid and powder operation

For complete details on the new BFM Multiple Packeter Model II, write to:

BROWN

FILLING MACHINE COMPANY, INC.

Division of FRANKLIN RESEARCH CORPORATION

FITCHBURG, MASSACHUSETTS

For more information circle No. 246 on Reader Service Card

"Imagineering—to meet tomorrow's needs." This slogan keynotes the forthcoming Fourth Annual Joint Military-Industry Packaging & Materials Handling Symposium. On opening day, key government and industry figures focus attention on the space age and a panel of scientists takes a look at space logistics. The second and third days feature 20 administrative and technical sessions conducted by government and industry representatives. These take place concurrently in five government auditoriums. New feature: A product information center where those attending the symposium can get latest manufacturers' literature on packaging and handling.

Navy holds Fourth Annual Joint Military-Industry Packaging & Materials Handling meet Sept. 30-Oct. 2

Some 2,000 packaging and handling executives and specialists from government and industry will assemble in Washington September 30—October 2 for the Fourth Annual Joint Military-Industry Packaging & Materials Handling Symposium. Sponsored by the Department of the Navy's office of naval material, the symposium seeks to build a closer relationship between government and industry packaging and handling specialists, and to provide a channel whereby each benefits from the progress of the other. Associate sponsors include the Departments of the Army, Air Force, and Commerce, as well as Packaging Institute, the Material Handling Institute, and American Ordnance, Aircraft Industries, and National Security Industrial Associations, and Quartermaster Research and Development Associates.

First day: September 30th

Morning session (9:30 a.m.) features Vice-adm. E. W. Clexton, chief of naval material, chairman; Fred A. Bantz, assistant secretary of the Navy (material); Clinton W. Blount, Bakelite Company; Vice-adm. Robert B. Pirie, deputy chief of naval operations (air), and Dr. Gilford G. Quarles, chief scientist, U. S. Army Ordnance Missile Command.

Afternoon session (1:45 p.m.) features a panel on space logistics. Chairman is H. H. Koelle, U. S. Army Ballistic Missile Agency.

Second day: October 1st

Morning sessions (9:00 a.m.) Following are panel topics and their chairmen. Series numbers and letters indicate the auditorium where each session meets.

(A-1) *New analytical concepts from industry,* Dr. James R. Bright, Harvard University graduate school of business administration.

(B-1) *Keys to profit,* Dr. James W. Goff, Michigan State University school of packaging.

(C-1) *Exploring the automatic warehouse theory,* William H. Meserole, Ballinger-Meserole Company.

(D-1) *Today and tomorrow in plastic packaging:* (1) *Thermoformed packages for small items,* Frank L. Quinby, W. R. Grace & Company; (2) *New flexible packaging materials and their uses,* Edward M. Porter, Wraps, Inc.

(E-1) *The modern approach to packaging administration,* Col. A. J. Mason, Headquarters Air Materiel Command.

Afternoon sessions (1:15 p.m.) include the following panels and chairmen:

(A-2) *Automatic data processing and perspective,* Harold Silver-

stein, Department of the Army.

(B-2) *Packaging, handling, and transportation of radioactive material,* Dr. Joseph A. Lieberman, Atomic Energy Commission.

(C-2) *Distribution and material handling,* R. L. Fairbank, Towmotor Corporation.

(D-2) *Molded and fabricated rigid and semi-rigid plastic containers,* Charles L. Condit, The Society of the Plastic Industry, Inc.

(E-2) *Package testing,* Herbert M. Lapidus, Department of the Navy.

Third day, October 2nd

Morning sessions (9:00 a.m.) include these:

(A-3) *The source to user concept,* Robert L. Turner, Traffic Air Transport Association.

(B-3) *The transportation industry's concept of an integrated containerized system,* Clifford C. Whiteford, Ford Motor Company.

(C-3) *Materials handling questions and answers,* John D. Velardo, Flow.

(D-3) *Rugged, but light,* Dr. J. A. Murray, Quartermaster Research and Engineering Center.

(E-3) *New trends in packaging materials and machinery,* R. Bruce Holmgren, PACKAGE ENGINEERING, W. B. Bronander, Jr., Scandia Packaging Machinery Company, co-chairmen.

(A-4) *In-company development of capable personnel,* Clifford J. Craft, American Management Association, and Dr. James W. Goff, Michigan State University, co-chairmen.

(B-4) *Meet the U. S. Post Office,* Roy L. Sheridan, U. S. Post Office Department.

(E-4) *New developments in packaging advanced type weapons and their components,* E. P. Troeger, Douglas Aircraft Company.

Where They Meet

All first day sessions take place in the Departmental auditorium, Constitution Avenue, between 12th and 14th streets, N.W. On the second and third days, concurrent sessions meet as follows:

Series A: Department of Commerce auditorium, 14th Street between D Street and Constitution Avenue, N.W.

Series B: General Services Administration auditorium, F Street between 18th and 19th streets, N. W.

Series C: Department of Justice Great Hall, 10th and Constitution Avenue, N.W.

Series D: Departmental auditorium, Constitution Avenue between 12th and 14th streets, N.W.

Series E: Department of Interior, C Street between 18th and 19th streets, Northwest.

Registration forms and detailed programs are available from the office of Naval Materials, Washington 25, D. C. Hotel accommodations for registrants are being handled by the Washington Convention and Visitors Bureau of the Washington Board of Trade, 1616 K Street, Washington 6, D. C.

(*End*)

Now You Can *Really* Cut Bag Making Costs

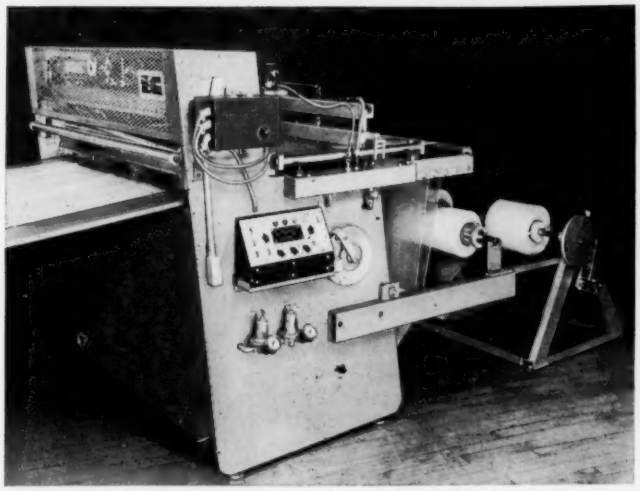
The NEW Corley-Miller

AIRTRONIC
Polyethylene BAG MAKER

- **Up to 300 Bags p.m.**
- **Widths to 45"**
- **Lengths to 70"**

Dependable high speed operation by leading converters has proved the new "Airtronic" a distinct advancement in polyethylene bag making. Sizes up to 45" wide; up to 70" long (longer on special order). Up to 100 bags per minute (one up). With Multiple Roll Unwind Stand, up to 300 bags per minute. Variable speed drive. Handles seamless tubing up to 10 mil flat or up to 3 mil gusseted. Hole punching mechanism and electric eye optional.

MODERN ELECTRONIC CONTROLS and AIR OPERATION replace complex mechanical parts, reduce wear, cut maintenance, simplify operation and insure better bags faster, at lower cost.



PRECISION CONTROLLED heat, pressure and dwell time on *relaxed* film insure consistently tight bag seals. Sealing dwell is instantly adjustable—no loss of time for temperature change. *It will pay you to know in how many ways the NEW Corley-Miller Airtronic machine can modernize your bag making production; so send for complete details without delay.*

MILLER WRAPPING & SEALING MACHINE CO.
14 So. Clinton St., Chicago 6, Ill., Phone RA 6-1883
More than a Half Century of Packaging Machinery Engineering

Announcements of machinery and products

1. Beneath each announcement is a code number. As you select items on which you want more information, *note* this number.
2. Now, *circle* the corresponding numbers on the postcard, located inside back cover.
3. Next, *fill* in your name and address.
4. Then, *mail* the card — we pay the postage.

Electronic Counting Machine

Delta Engineering Corp. announces its Model "E" universal counting machine, which is capable of counting up to 12,000 bottles of 100 tablets or capsules/hr. It handles regular or irregular shaped compressed and coated tablets or capsules; a guide adjustment permits one minute changeover with no change parts; a photodiode detection system and transistorized counting instrument offer accuracy. It is available with 2 to 10 orientation channels, each equipped with its own feeder, flow divider, detector, and electronic controls. Circle No. 1.

Belt Conveyor Sewing Unit

Dave Fischbein Co. has developed a belt conveyor sewing unit, the Model B-5 bag closer. The two-stage switch operation is controlled by foot pressure by the operator. The first stage starts the movement of the conveyor belt to carry the bag to the sewing head, and the second stage starts the sewing operation. The machine stitches at the rate of 30 ft/min. The conveyor is 5 ft. long and the belt is 12 in. wide. Maximum distance from the sewing head to the belt is 39 in., the minimum is 14 in. The sewing head height is set by turning an adjustment wheel. Minimum distance from belt to floor is 7 in. Circle No. 2.

Variable Rate Feeder

Syntron Co. announces its Model F-010 electromagnetic vibratory feeder for high-capacity, rate-controlled feeding of bulk materials and small parts in weighing, blending, mixing, packaging, and similar processing operations. Its electromagnet drive produces 3,600 vibrations/min. Its rheostat control affords fingertip adjustment of feed rates from a dribble flow through continuously variable settings to a maximum capacity of 3 tons/hr. An operating switch in a separate controller starts or stops the vibrations and the materials flow. Circle No. 3.

Spike Caps

Wheeling Stamping Co. has a new spike cap for closed-neck tubes. The integral spike on the cap is

engineered to puncture the neck diaphragm completely. Of interest for all products marketed in closed-neck tubes. Circle No. 4.

Rotary Pressure Filler

Arthur Colton Co. has introduced a new No. 1651 line of Colton-Alpha high-speed production line rotary pressure fillers that fill aerosol-type containers with several different types of liquid propellants. The fillers feature precision pressure filling heads that handle butane and propane straight hydrocarbon-type propellants as well as the usual fluorinated hydrocarbon types. These rotary machines are made in standard models that will fill containers with propellant following product filling, dispenser valve insertion, and valve crimping operations. Production rates of up to 200 cans/min. can be achieved by the machines. Circle No. 5.

Automatic Jaw Sealer-Labeler

Doughboy Industries has a new automatic jaw sealer-labeler that seals and labels bags at the rate of 1/sec. and will function in production line sealing and labeling of cellophane, cello-laminates, polyethylene, saran, Mylar, and other firms. Circle No. 6

Automatic Checkweigher

Toledo Scale Corp. announces its Model 9460 automatic checkweigher, capable of handling packages or bags between 25 lbs. and 200 lbs., with an accuracy of .1 per

cent. Equipped with a belt-type motorized conveyor weigh section, items pass over the unit at a rate of approx. 20/min. and are checked "on the run" against a predetermined weight. The unit may be adjusted to change from one package weight to another. Circle No. 7.

Print Forming & Wrapping

Girdler Process Equipment Div. of Chemetron Corp. announces development of a new high-speed print forming and wrapping machine for margarine. The new Votator unit is designed to wrap either whipped margarine or conventional margarine. It forms and wraps quarter-pound prints of regular margarine at 5,000 to 6,000 lbs./hr. Capacity for whipped margarine, six prints per lb., is 3,000 to 4,000 lbs/hr. Circle No. 8.

Multiwall Paper Bag Closing

Union Special Machine Co. has designed a machine, Style 80600 HZ, for automatically applying pressure sensitive, self-adhering tape in conjunction with the sewed closure. The machine feeds the tape to the folder from a reel and tape guide assembly. The tape then goes through a slot in the presser foot just behind the needle. It is sealed over the line of stitching the pressure of the presser foot. An automatic trimming device clips off the tape at each end of the closure. The machine is fitted to accommodate a 2-1/8 in. tape width that finishes approx. 1 in. wide when folded over. Circle No. 9.

Thin Wall Tube Printer

Industrial Marking Equipment Co. has a new imprinting machine for marking, dating, and coding thin wall tubes and cans without indenting or damaging surfaces. The printer is said to handle any open type unit, both metal and plastic, that will fit mandrels from 1-1/2 in. to 6 in. The machine prints direct impressions from rubber type. Operation centers around a solenoid activated single revolution clutch so that production speed adequately paces operator feed rate. The unit can also be made to cycle automatically. Circle No. 10.

Semi-Automatic Vertical Cartoner

Bivans Corp. has developed a semi-automatic vertical cartoner, the Vertuck 120. The machine offers easy access for filling by as many as five operators. Cartons move in smooth and continuous motion from a hopper on the horizontal forming and bottom closing unit, and are transferred onto a vertical unit for filling and automatic closing. Crank-in features eliminate most set-screw adjustments and allow quick changeover. The Vertuck delivers up to 120 cartons/min., in sizes ranging from 3/4x3/4x2-1/2 in. to 4x4x 12 in. It is available in units or as a complete system. Circle No. 11.

Elgin
EARNS ITS WAY

"60-A-MINUTE" ELGIN-WRAP

Model GSA

FOR cellophane waxed paper aluminum foil glassine, etc.

★ high-speed, straight-line producer
★ fully adjustable for package variety
★ rapid changeover adjustments

Fully automatic, the great Elgin-Wrap is built to be a steady, swift and easily maintained producer! Designed to handle heat-sealing materials, it can also be equipped with photo-electric registration controls for printed wrappers. And the Elgin-Wrap is unequalled in its price field for speed.

Write for folder Dept. E-89 or Send samples for quotations and recommendations on your needs.

A DIVISION OF
ELGIN MANUFACTURING COMPANY
200 Brook Street • Elgin, Illinois

For more information circle No. 247 on Reader Service Card

CHAFFEE ROTOR-SEALER

In Production Line Sealing
The #1 Sealer

WHY? Because it seals all popular sealable materials. You may change your package from sealing bag top labels on cellophane, polyethylene, pliofilm and saran to the sealing of unsupported films, viz; cellophane, polyethylene, pliofilm, vinyl by simply turning the thermostat dial.

Military Approved Sealer Available

RALPH CHAFFEE & CO.
2358-2360 MARKET ST. SAN FRANCISCO 14, CALIF.
REPRESENTATIVES IN PRINCIPAL CITIES

For more information circle No. 248 on Reader Service Card

Industry literature available free

1. Beneath each announcement is a code number. As you select items on which you want more information, *note* this number.
2. Now, *circle* the corresponding numbers on the postcard, located inside back cover.
3. Next, *fill* in your name and address.
4. Then, *mail* the card – we pay the postage.

Corrugated Containers

Gaylord Container Corp., Div. Crown Zellerbach Corp., has a brochure thoroughly describing its newest corrugated container, called the "Drumpaket." The containers are available in a variety of sizes, ranging from 2-1/2 gal. to 62 gal. capacity, and are manufactured in octagonal, hexagonal, or square shapes. Container caps lock into position permanently and tear tape is applied on the body to facilitate opening, and also providing a reclosable feature. "Drumpakets" are delivered to the user in knocked-down form, thus saving valuable storage space. Circle No. **101.**

Downtime Recorder

Gorrell & Gorrell have a four-page report on the Efficiency Recorder, a device used to automatically and graphically record downtime. The information, continuously readable, tells the operator, foreman, time study man, and production engineer just what is happening during an entire shift. During productive time, the graphic line climbs upward; during downtime, the line becomes horizontal. The device is automatic, driven by an electric motor. Circle No. **102.**

Polystyrene Packaging Film

Dow Chemical Co. offers literature on its new low cost polystyrene film, Trycite. Among the advantages claimed for this film are its clarity, its food chemical resistance, and its excellent mechanical properties. A breathing film, Trycite does not absorb moisture, distort, or become brittle, Dow says. Packaging applications now include use in food and textile plants, with good possibilities of use in such fields as confectionery, cleaning, dairy goods, drugs, wearing apparel, and variety items. Circle No. **103.**

Seamless, Unbreakable Cans

George D. Ellis & Sons, Inc., have released Product Memo No. 111 in which its light, unbreakable cans of seamless, one-piece construction are illustrated and described. Included are descriptions of LabelStik styles No. 10 and No. 20, and plain styles No. 12 and No. 22. LabelStik cans feature crimped-in, white labels for permanent identification of contents. Charts showing capacities, dimensions, packing per carton, and shipping weight are included. Circle No. **104.**

Aerosol Pressure Tester

The Robins Engineering Co. is offering a four-page folder describing the operation of Model CA-1. It automatically tests pressure, vents gas, fills dip-tube to desired level, prevents product discharge during test, and rejects faulty containers. Easy to operate and adjust, it handles speeds up to 60 containers/min. Circle No. **105.**

Cellulose Sheeting

Eastman Kodak Co., Cellulose Products Div., offers a four-page bulletin, "Properties of Kodapak Sheet," a thermoplastic cellulose ester sheet. Graphs and charts outline the physical properties of the three available types. Circle No. **106.**

Plastic Sheet Fabricating Machines

Taber Instrument Corp. offers a folder describing a complete line of plastic sheet forming machines. This includes units that will draw or form a single or double edge bead, cylinder bead, crease, fold, and cylinder weld. Circle No. **107.**

Vacuum Forming And Trimming

Emhart Manufacturing Co. has literature on its Vactrim machine. It combines three plastic forming processes in one machine and supplements them with automatic trimming. These processes, which are straight vacuum forming, drape vacuum forming, or vacuum forming with plug assist permit almost any shape of thermoplastic sheet product to be made as large as 22″ x 22″. Circle No. **108.**

Pallet Cover Materials

Kennedy Car Liner & Bag Co. offers sample sheets of paper and plastic materials used in fabricating pallet covers for protection against dust, dirt, moisture, water, and pilferage. Circle No. **109.**

Valve Bag Packer

E. D. Coddington Mfg. Co. offers information on its Air-Pac valve bag packer, a machine using the fluidizing air principle of conveying powdery and free flowing materials. It fills standard valve bags of from 20 to 100 lbs. No moving parts are used. The packer is ready to operate when connected with 110 volt AC service and to standard low capacity air compressor system. A built-in scale provides weight control and shuts off packer automatically when correct weight is reached. Circle No. **110.**

Instant-Drying Imprinter

Markem Machine Co. offers further data on its Model 105-10H machine which uses the Thermomark process in its imprinting operation. The Thermomark process employs a thermostatically-controlled heated printing head and Touch Dry ink which is solid at room temperature. The Touch Dry compound is converted to liquid form on a heated ink plate and dries instantly upon contact with the object being imprinted. Marking speeds of 80 to 100 imprints/hr. are attainable, with maximum imprint sizes 7-1/2″ left to right (narrow head) or 10-3/4″ (wide head). Circle No. **111.**

Silicone Catalog

Dow Corning Corp. has the 1958 Reference Guide, a catalog of silicones. Described in it are over 150 commercially available silicone products. Also included are detailed charts, tables, graphs, and data on properties and performance, along with illustrated examples on how silicones can cut costs, simplify design, etc. Circle No. **112.**

Packaging Film Adhesives

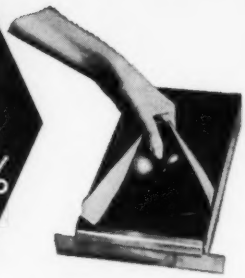
National Adhesives, Div. of National Starch Products, Inc., has a handy booklet describing how to handle adhesives for transparent films. The characteristics and applications of lacquer, hot melt, and solvent activator adhesives are explained in detail. There is a discussion of problems relating to penetration, aging, and storage as well. A separate chart is inserted which reviews 14 different transparent films, listing their means of identification, their manufacturer, trade name, thickness, types, and characteristics. Circle No. **113.**

Flat Gummed Paper

Mid-States Gummed Paper Co. is offering a sample book of its flat gummed paper. Labels, their uses, the base paper stock available, the proper stock and gumming for each application, etc. are incorporated in this new file folder sample book. Circle No. **114.**

(*Turn Page*)

REDUCE CLEAN-UP TIME 50%



a thin film of

RELEASE-COTE

on any surface sheds residue glues, adhesives, plastic coatings, inks, paints . . . like magic!

● Machines last longer because RELEASE-COTE repels coating materials, eliminating build-ups that tax motors and moving parts.

● Operators love RELEASE-COTE's gentleness to their hands. A little rubbed on the hands prevents coating material from sticking to the skin and nails.

Available in qt., gal., 5 gal. and tube.

Write for literature.

ESTABLISHED IN 1893 POTDEVIN

Distributed by

POTDEVIN MACHINE CO.

221 North Street, Teterboro, N. J.

Designers and manufacturers of equipment for gluing and labeling, coating, laminating, bag making and printing.

For more information circle No. 249 on Card

Quicker, Easier, Less Costly

STENCILING *with* REYNOLDS *SPRAY* STENCIL INKS

quick drying—waterproof

Specially compounded ink assures utmost economy and satisfaction.

Many outstanding advantages:

MODERN easy to hold aerosol container sprays a dense cone of specially formulated opaque ink at the touch of a finger. Not a paint or lacquer. Dries instantly. Always ready to use. No brushes to clean or load. No drying out. No mess. No waste. No build-up or curtaining.

PROVEN BEST for all stenciling on boxes, crates, cartons, drums, or any steel, wood, fabric, concrete or other surface.

9 COLORS. Ideal for color coding equipment and materials, design layout work, inspection marking, department routing, signs and warnings, etc.

ASK US ALSO about Reynolds sprayed Stencil Kover®, the opaque tan colored block-out fluid that covers over old stenciling or other markings. Dries quickly. Permits re-stenciling of original containers, correction of errors, and salvaging overruns of printed cartons.

WRITE* for color card and name of nearest dealer *TODAY!

REYNOLDS INK, INC.

4536 EUCLID AVE.

CLEVELAND 3, OHIO

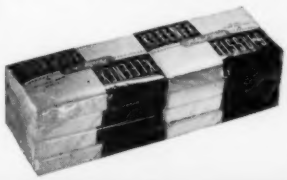
For more information circle No. 250 on Card

Step up sales, cut labor costs . . . bundle your packages on the OLIVER

Overwrapping groups of packages into attractive bundles naturally increases unit sales. Distributors and retailers find bundled paper specialties, drugs, food items and similar articles easy to stock and handle.

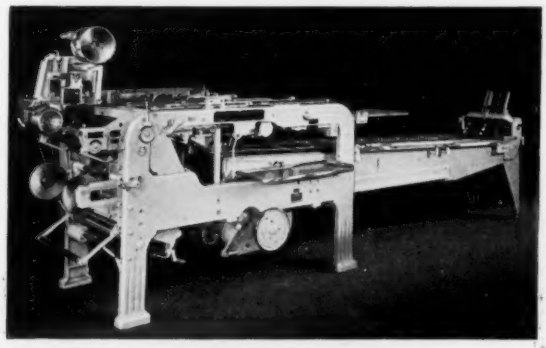
The recognized quick-adjustability of Oliver wrapping machines makes them ideal for bundling. You can switch from endfold to underfold at the flick of a finger. Change for package size in a minute or two. Even with short runs, down-time is low. And the unusual range of sizes handled by Oliver wrappers is another money-saving advantage.

The Curad and Kleenex bundles grew popular overnight. The Oliver overwraps and zip-tapes 12 Curad packages to the bundle. It overwraps 8 Kleenex packages. These eye-pleasing bundles are neat and strong.



Get all the facts

Oliver engineers will help you decide the best way to bundle your packages. They will plan your line to synchronize the accumulating and feeding operations. Write for details.



Oliver PACKAGING DIVISION

MACHINERY COMPANY

445 6th, N. W., Grand Rapids 4, Michigan

For more information circle No. 251 on Card

Hot Melt Applicator

United Shoe Machinery Corp. has a bulletin describing its new Model CW Thermogrip adhesive applicator. The unit can be incorporated into packaging and processing equipment and utilizes a heated applying wheel to deposit a desired pattern of hot melt adhesive on any material or object requiring an adhesive. The applicator uses adhesive which is fed in cord-like form from a reel and melted as needed. A unique feature of the applicator is its capacity to function when placed in any position. Circle No. **115.**

Elevator Hopper

U. S. Engineering Co. has released Brochure B-34 on its elevator hopper. This machine consists of a box-like hopper having its loading approximately 3 ft. above floor level. An inclined cleated belt runs through the hopper carrying the partially oriented parts to the discharge point. Improperly oriented parts are rejected back into the hopper. Circle No. **116.**

Automatic Net Weighing

The Exact Weight Scale Co. offers Brochure 3318, describing its automatic net weighing machines for weighing a wide variety of products. Quantities from 1 oz. to 3 lbs. can be handled on one model and 3 lbs. to 10 lbs. on the other. Heavier capacities up to 100 lbs. Operation may be fully automatic or push button actuated on either or both the filling or dumping of material. Machines are illustrated by both photographs and line drawings, with specifications. Circle No. **117.**

Pressure Packaging

Crown Cork & Seal Co., Inc., has a looseleaf-type manual containing information of special interest to companies already engaged in or considering entering the field of pressure packaging. Sections in the manual include one on how pressure packaging works, others on two ways to package under pressure, basic steps to pressure packaging your product, selecting your container, and public regulations affecting pressure packaging. Circle No. **118.**

New Type Closures

Wheaton Glass Co. recently introduced two new type closures which are described in a four-page illustrated folder. A captive tamperproof snap cap made of polyethylene features a tear-off strip and an irremovable clamping ring. It performs equally well on containers of glass, rigid plastic, or metal, and on narrow-mouth or wide-mouth finishes. Also described is a captive screw-cap dispenser comprised of a cap and a check valve. It can be made to dispense by dropping, sprinkling, or pouring. Circle No. **119.**

Antioxidant-Treated Materials

Eastman Chemical Products, Inc., has issued a twelve-page brochure describing the use of antioxidant-treated packaging materials to extend the shelf life of fat-containing foods. The brochure tells how the two principal food-approved antioxidants, butylated hydroxyanisole (BHA) and butylated hydroxytoluene (BHT) can be applied in emulsion form to unwaxed papers and paperboard or, in the case of waxed liners, board stock, etc., how these antioxidants can be added directly to the paraffin prior to coating. Test results are included. Circle No. **120.**

Automatic Case Packer

W. F. and John Barnes Co. offers more information on its automatic case packer for bottled goods. Instead of dropping the bottles, the machine raises them into the nest of the inverted case. Raising is done by lifter fingers having slightly curved surfaces, which cause the bottles to fan out so that they enter compartments with almost no contact with the dividers. The basic machine consists of an infeed laned conveyor, pattern-collecting station, case-loading station, automatic carton positioner, and a carton discharge mechanism. Circle No. **121.**

Polyethylene Drums

Plax Corp. offers descriptive literature giving prices and specifications for its line of polyethylene drums which have a nominal capacity of 13 gals. They stack easily, are inert to most chemicals, and are light in weight. They feature ease of handling, with handles on the top, and easy pouring through a specially designed spout. These drums are available in a minimum quantity of four, the number shipped in one carton. Circle No. **122.**

Cappers And Sealers

Resina Automatic Machinery Co., Inc., has a gatefold brochure showing ten different models of its line of bottle and jar cappers and edible oil can sealers. Semi-automatic and fully automatic models are described. Speeds range from 20 to 200/min. Circle No. **123.**

Cellophane For Packaging

E. I. Du Pont De Nemours & Co., Inc., has published a pamphlet tabulating the most common of its cellophane types and presenting a summary of their properties and principal uses. Among the films described are those used for wrapping bakery goods, frozen food overwraps, cigarette and cigar wraps, frozen food carton liners and laminations, fresh meat wraps, produce wraps, and many others. Circle No. **124.**

Tape And Label Dispensers

Derby Sealers, Inc., has available a brochure illustrating a number of tape and label dispensers. It includes both electric and manually operated machines that will handle kraft, reinforced, gummed, and pressure sensitive tapes. In addition to many accessories, it also includes their "Dispens-A-Ply" pressure sensitive labeler, coding attachments, and polyethylene bag sealer for poultry and produce. Circle No. **125.**

Box Closure Methods

Acme Steel Co. offers a Guide to Better Closures, specially prepared for users of fibreboard boxes and packages. The new brochure is intended as a guide for the evaluation of methods currently in use to effect economies and stepped-up production in the closure of fibreboard boxes. It contains information on closure methods such as hand and machine gluing, taping, stapling, and wire stitching. A special section on regulations for sealing fibreboard containers is included. Circle No. **126.**

Can Line Equipment

B. F. Gump Co. has issued Bulletin No. 306 on its Bar-Nun "Auto-Check" can line equipment. This equipment automatically feeds, weighfills, packs, and ejects 1/2 or 1 lb. cans of dry granular, crystalline, or powdered materials. The four-page bulletin describes operating features of the equipment, including the guaranteed accuracy of its weigher units. Circle No. **127.**

Carton Sealer

Triangle Package Machinery Co. has a data sheet on its carton sealer. This machine will seal 70 cartons/min. in 3" x 6" x 7" size, and is adjustable from 56 to 640 cu. in. Circle No. **128.**

Powder Filling

Pneumatic Scale Corp., Ltd., has released Bulletin 136 on its Vacuflow powder fillers. These fillers provide dust control by evacuating air from the container to be filled. A number of different models are pictured and their specifications given. Circle No. **129.**

Automatic Bale Sealer

J. L. Ferguson Co. has Bulletin 10056 on its automatic bale sealer. This machine will handle master shipping sacks or bags 9 in. to 18 in. in length, 5 in. to 9-1/2 in. in width, and 14 in. to 40 in. high. The machine folds, glues, seals, and compresses. Circle No. **130.**

Adhesives, Coatings, Sealers

Minnesota Mining & Mfg. Co. has issued a 23-page catalog listing official U. S. government specifications for a wide variety of adhesives, coatings, and sealers. The catalog lists in numerical form the military, army, and federal specifications, their definitions, and the corresponding adhesives, coatings, or sealers that meet these specifications. Circle No. **131.**

Net Weigher

U. S. Automatic Box Machinery Co., Inc., has an information sheet listing features of the Scott net weigher. A precision machine, it is available in four models that handle fills of 1 oz. up to 5 lbs. at speeds up to 40 weighings/min. Unit is adapted to free flowing and semi-free flowing dry products. Circle No. **132.**

Thermal Impulse Heat Sealing

Vertrod Corp. has an eight-page but powerful heat impulse and then cool film under pressure. Machines listed range from portable hand brochure that gives specifications for six models of thermal impulse sealers. These units weld thermoplastic films by introducing a short sealing length. Circle No. **133.**

Adhesives For Transparent Films

Morningstar-Paisley, Inc., has developed a Guide to Adhesives for Transparent Films and Characteristics of Transparent Film Adhesives. Included is a table listing popular types of transparent films and suggesting

the types of adhesives applicable for a number of uses such as transparent bags, window bags, window boxes, or laminations. The adhesives listed can be used with any of the existing machines normally used by converters. Circle No. **134.**

Corrugated Shipping Boxes

Stone Container Corp. offers 16-page illustrated booklet, "How to Select the Proper Container for Your Product." The booklet contains sections on the right test of paperboard, best construction, checkpoints for adequate protection at minimum cost, best size, best handling, etc. Also included are tables on economical dimensions and on container test requirements for express shipments. Circle No. **135.**

Package Testers

L.A.B. Corp. has literature that describes its three different package testers. Its incline impact testers and vibration testers range from 400 lbs. to 10,000 lbs. capacity, with table sizes up to 8′ by 12′. A drop tester handles packages up to 100 lbs. Price sheets, specifications, and mechanical drawings are included. Circle No. **136.**

Bag Maker, Filler, Sealer

Hudson-Sharp Machine Co. has a brochure describing its "Campbellpak" machine. It converts thermoplastic film roll stock to heat sealed bags for sequence packaging of powders, granules, liquids, and solids. Three models produce bags from 1″ to 14″ wide by 2″ to 20″ deep, at speeds up to 40/min. Circle No. **137.**

Label Dispensers

Avery Adhesive Label Corp. offers an illustrated bulletin which provides specifications for four models of its pressure-sensitive label and heat seal label dispensers available in electrically-operated or manual styles. Circle No. **138.**

Plastic Vials

Lermer Plastics, Inc., illustrated data sheet lists various sizes of its stock line of plastic transparent vials. Available in minimum quantities of 1,000, you can choose between threaded vials with metal screw caps, shoulder vials with polyethylene slip-on caps, or shell vials with polyethylene plug closures. Sizes range from 1/2″ by 2″ to 1″ by 4″. Circle No. **139.**

Metric Flow Dry Filler

Weigh Right Automatic Scale is offering Bulletin 541 describing its automatic dry filler. A patented principle meters the stream flow in equal volume at regular intervals with multiple or single discharge per revolution of the rotor. It will handle fine or medium coarse product, 1/8 oz. to 8 oz. packages, at speeds of 25 to 70/min. Circle No. **140.**

Liquid Shipping

Hinde & Dauch has issued a technical report on a new packaging approach for shipping liquids in a polyethylene bottle and corrugated

Labeling Lines

by George L. N. Meyer, Jr.

SUGGESTED METHODS FOR OBTAINING BOTTLE CONTOURS

Many times in a packaging line or bottleshop operation, a problem occurs and production goes down. Someone says, "I think it's the glass", but no-one actually knows and more frequently than not, no-one checks. Even with an accurate drawing from the glass manufacturer, it is difficult to look at a bottle and be certain that the neck is straight or that the surface where the label is being applied is absolutely true. As an aid to solving this problem, a "sun print" is an excellent check tool. To properly obtain the contour of a specific glass container, the use of a "sun print" is the easiest known method.

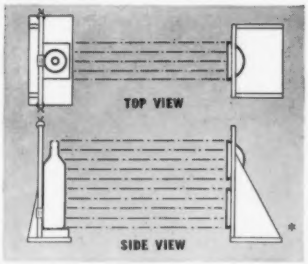
SUN PRINT METHOD: Supporting Plate Must Be Perpendicular To The Sun Rays — Print Paper — Adjustable Stand.

Using a stand similar to that shown in the sketch, above, clamp a bottle in the position as shown. Allow enough room behind the bottle to slide a piece of photographic print paper. Adjust the supporting plate so that it is perpendicular to the sun's rays. The intensity of the sun's rays and the speed of the paper will determine the exposure time. The average time is usually between 20 seconds and 1 minute.

Immediately following exposure, remove the paper and complete the developing process. If the supporting plate is properly positioned (perpendicular to the sun's ray) the bottle image will be sharp and accurate.

The next obvious question is — What happens when the sun isn't shining? Well — it takes a little longer, but we can offer a second method. A print can be obtained indoors by using an arrangement similar to that shown in the sketch, at top, right.

Two spotlights are used for the light source. They must be fixed on the vertical support plate so that the light beams will be parallel to each other and on a horizontal plane. The vertical support plate holding the print paper must be perpendicular to the beams of the spotlights.



SPOTLIGHT METHOD: Vertical Plate With Suitable Clamps To Secure Print Paper — Print Paper — 14 Feet Between Lights And Bottle — Westinghouse Spotlights #4535 30 Watt-6 Volts — Bottle Stand — Light Stand.

Locate the light stand approximately 14 feet from the bottle stand. Although the bottle outlines will not be as sharp as those on a sun print they will provide enough detail to determine the exact bottle contour. The average time of exposure is 25 to 30 minutes.

It's well to remember, too, that in making a "sun print" you should rotate the bottle and take the print in two or three different positions. This will assure you that the bottle is "True" insofar as its vertical center line is concerned.

As a labeling machine manufacturer, we use "sun prints" to do preliminary layout work to determine those areas best suited for the application of labels. As a production user of glass, it might be well if you set up a "check system", whereby a random selection of new glass is made and "sun prints" taken before you begin your production operation. In this way, you could anticipate trouble long before it occurred and know exactly what to do in order to overcome it if it did appear. Certainly knowing that you are operating with a container that is off standard is a lot better than attempting to guess what is wrong with the entire line, when efficiency drops.

In short, the first requisite for successful labeling is consistent glass. Your bottle contour "sun prints" will help you to maintain your standards.

**Enlarged prints on request.*

World's Largest Manufacturer of high-speed Labeling Machinery

WORLD LABELERS

ECONOMIC MACHINERY COMPANY • Worcester 3, Mass. / Div. of Geo. J. Meyer Manufacturing Co.

box. Among the advantages claimed for this method are reduction of shipping costs through lighter weight, easier handling, elimination of breakage, and saving on set-up costs. Included in the report is a list of liquid products which can be shipped in polyethylene bottles and a step-by-step case history of how this new method was employed for shipping electrolyte fluid. Circle No. **141.**

Wrapping And Bundling Machines

Scandia Packaging Machinery Co. has published an interesting booklet commemorating its 40th anniversary in the wrapping machine business. In addition to a review of the company's history and growth, an illustrated section is devoted to the description of the six basic types of machines manufactured. They are designed for bundling, banding, multiple wrapping, stamping, and high-speed wrapping operations using cellophane, paper, and other wrapping materials. Circle No. **142.**

Label Gluer

King Sales and Engineering Co. offers a two-page bulletin on its Model F6 label gluer. Line drawings illustrate machine details and half-tones show in-plant usage. Detailed specifications are listed for motor- and hand-driven units. Circle No. **143.**

Wrapping Machines

Battle Creek Packaging Machines, Inc., has a recent brochure on its Model 56G wrapper. The machine seals on narrow edge while retaining normal envelope folds at the ends so that side panels are unbroken and cannot be marred by heat or scratches. Size ranges from 1" to 5" high, 2-1/2" to 8-1/2" wide, and 5" to 15" long are available. The wrapper handles heat-sealable films and paper at speeds up to 90 pkgs./min. Circle No. **144.**

Heat Sealing Crimpers

Wrap-Ade Machine Co., Inc., offers three models of heat sealing crimpers in a current four-page brochure. These units are available in automatic and semi-automatic models for crimping and sealing envelopes or bags of heat-sealable foil, cellophane, or similar materials. They offer a choice of six sealing patterns and additional attachments are available for hole punching, notching, and coding. Circle No. **145.**

Addressing And Marking Machine

Weber Marking Systems, Div. of Weber Addressing Machine Co., Inc., has issued a four-page bulletin describing its Web-O-Print duplicator. This machine is used to imprint shipping addresses and product information on labels and cartons. A chart lists the eleven different Web-O-Print models with their respective printing dimensions and prices. The folder also includes a check list of other uses for this machine. Illustrations accompany the text. Circle No. **146.**

Reel Pack Corrugated Box

National Container offers Design Data Sheet D-1 in which its Reel Pack method of packaging products such as wire, tubing, hose, etc., in a corrugated package is described. Reel Packs are shipped knocked down, and are easily assembled by hand. Circle No. **147.**

Overwrapping Film

Phillips Chemical Co. is currently offering samples of and data on Marlex polyethylene film. Film can be readily torn in a straight line with no tear tape. It can be boiled or frozen, is heat-sealable, and handles efficiently in "push through" overwrap machinery. Circle No. **148.**

Aerosol Pressure Charging

Karl Kiefer Machine Co. has a four-page brochure on its equipment for aerosol packaging. Illustrated is its high-speed "Gas Jet" pressure charging unit and various pieces of equipment for measuring liquid on various products into the container prior to taking the charge of propellant gas. Circle No. **149.**

Paint Packaging

Elgin Mfg. Co. offers Catalog No. 551, which gives specifications for its line of equipment for paint packaging. Included is data on its paint filler, cover dropper and capper, high-speed six-valve rotary paint filler, and automatic cap dropper and capper. Circle No. **150.**

Interior Packaging

Kimberly-Clark Corp. has a sample book showing various types of Kimpak, such as plain or embossed, and types of backing papers available. Suitability for various types of products as surface protection, cushioning, etc., is enumerated with each sample. Circle No. **151.**

Cellophane Storage

American Viscose Corp. has a folder on the storage, handling, and application of its cellophane. This includes twelve rules deserving attention, as well as a checklist of things to do to get maximum benefits from this material. Circle No. **152.**

Bag Closers

George H. Fry Co. has issued a four-page illustrated folder that gives specifications and operating features of four different models of bag closing machines. These are continuous motion machines that will close and seal paper bags up to 3 lb. capacity. It handles bags made of kraft paper, waxed paper, plain or waxed glassine, foil and paper combinations, using either adhesives or the heat seal method. Circle No. **153.**

Wrapping And Carton Formers

Package Machinery Co. offers Bulletin 170-11-4 listing 16 models of its equipment for wrapping, bundling, tray and carton forming, and closing. Circle No. **154.**

Foil Lined Shipping Sacks

Hudson Pulp & Paper Corp. has published technical data Bulletin FW-101, which lists a description of its Foil Wall shipping sacks. Supplied in sewn constructions, these sacks range from three to six plies of kraft paper, including the aluminum foil barrier. A special laminant provides a total surface bond and seals all foil pinholes. The laminant is non-toxic, has a low temperature crack point, and a high melt point. These sacks are adapted for use in packing organic, inorganic, and industrial chemicals, resins, pigments, bulk pharmaceuticals, foods, cleaning compounds, etc. Circle No. **155.**

Vacuum Fillers And Body Labelers

Biner-Ellison Machinery Co. manufactures a line of fillers and labelers that are described in a current catalog. Specifications and pictures are given for nine different machines, some of which fill and label simultaneously. The fillers are designed to vacuum fill still liquids, and the labelers apply body labels, handling a wide range of glass containers and label sizes. Circle No. **156.**

Molded Pulp Packaging

Keyes Fibre Co. lists the advantages of molded pulp shapes for interior packaging in a four-page brochure. Custom molded into varying shapes, this material provides contoured partitions that protect against shock and are particularly adapted to the low cost packaging of fragile products such as fruits, glassware, electrical parts, fluorescent tubes, meters, etc. Circle No. **157.**

Vacuum/Gas Pouch Packaging

Standard Packaging Corp., Flex-Vac Div., offers a four-page bulletin on the Model 6-12 vacuum or gas pouch packaging machine. Fully automatic, this unit handles luncheon meats, ham, cheese, dried beef, frozen foods, etc., at speeds up to 60/min. Circle No. **158.**

Stock Plastic Jars And Vials

Celluplastic Corp. has a four-page catalog sheet illustrating and listing the specifications for a complete line of polystyrene molded vials, squat jars, flexible acetate and butyrate extruded vials, as well as metal and plastic closures for these packages. These are stock fitments and containers. Circle No. **159.**

Hot Melt Coatings

Boler Petroleum Co. has a folder describing Nicolmelt Molten coatings. These coatings and laminants eliminate the need for solvents; they are applied on paper the same way as wax. No drying ovens or heaters are required; they set up solid immediately upon cooling and high gloss is developed by running the web over a chill roll. A list of 20 packaging applications is provided which includes breadwrappers, folding cartons, paper bags, bakery trays, and boards. Circle No. **160.**

Black Polyethylene Coated Papers

Thilmany Pulp & Paper Co. has a kit that contains samples of several of the most popular grades of plain kraft and Tuf-Wet papers coated with black polyethylene. These papers give extra protection against weather and light rays because the black polyethylene absorbs ultra violet rays from the sun. Circle No. **161.**

Pill Bottle Wadding Equipment

Consolidated Packaging Machinery Corp. describes its Kottoner automatic bottle wadding machine in an illustrated bulletin. Unit is designed to insert cotton wadding in the top or bottom of pill, tablet,

or capsule bottles. Speeds for various models range from 40 to 250/min., handling container sizes of 25's, 50's, 100's, etc., by count and from 1/2 oz. to 6 oz. by size. Circle No. **162.**

Adhesives

Swift & Co. offers a leaflet, "Canning Adhesives," that describes and lists applications of 25 different types of adhesives, including hot pick-up gums, lap end label pastes, metal and bottle labeling adhesives, case sealing and palletizing adhesives. Circle No. **163.**

Gummed Tape Usage

Central Paper Co. has a ten-page booklet entitled "Why Gummed Tape Sticks." It discusses the correct way to apply tape and take care of taping equipment. Circle No. **164.**

Packaging Adhesive

Arabol Mfg. Co. has a booklet entitled "How to Buy Adhesives for Better Adhesion," which offers 23 basic yardsticks for selecting the right adhesive for a particular application. It points out such factors to be considered when selecting an adhesive as the material being used, the length of time an adhesive must "stick," conditions such as dry heat, dry cold, moisture, etc., with which the product may come into contact, how the adhesive is to be applied, and so on. Circle No. **165.**

Hot Melt Sealing

Clybourn Machine Corp. offers literature on its new hot melt Glu-Pac cartoning machine, which features hot sealing and automatic carton set up and insertion. The hot melt seal is air tight at temperatures from -30° F. to 160° F. and has fibre tearing adhesion. The machine packages from 40 to 60 cartons/min. Glue applicators are removable. Circle No. **166.**

Tape Sealing Corrugated

General Corrugated Machinery Co., Inc., lists the advantages of its case sealer in a current data sheet. This machine can be included in many present flap gluing lines and is adapted for dust-sealing of pilferproofing or for top and bottom plus end panel taping. This unit handles plain or reinforced tape with equal facility. Circle No. **167.**

Stapling, Tacking Units

Fastener Corp. offers a 28-page catalog which describes and illustrates its complete line of Duo-Fast manual and air-operated stapling and tacking equipment. Model numbers of each item, the type of staples that may be used, and special features for different users are included. Description or guides, attachments, and other accessories available are enumerated. Circle No. **168.**

Package Caser

The Canning Machinery Div. of Food Machinery & Chemical Corp. offers a four-page bulletin, No. CMD 601-W, which lists specifications and pictures of the Sure-Way package caser. This machine can load rigid or semi-rigid packages into a variety of corrugated case sizes, either top or end loading, at speeds up to 240 packages/min. Circle No. **169.**

Polyethylene Tips

U. S. Industrial Chemicals Co. offers a nine-page illustrated and bound file folder entitled "Polyethylene Tips." Reissued and brought up to date, this material includes information on the selection of polyethylene resins, as well as the effect of density, molecular weight distribution, and molecular weight on polyethylene properties. Details of twelve different U.S.I. petrothene polyethylene resins are included. Circle No. **170.**

Fluted Cushioning Trays

American Rondo Corp. offers a brochure that outlines the characteristics, applications, and economy of a protective packaging innovation, fluted trays. These packages are made of lightweight paperboard that is formed into rows of consecutive flutes which serve as nests for fragile products. This type of package is designed to cushion against shock and is suited to the packing of fragile and delicate items. Circle No. **171.**

Automatic Cartoning

R. A. Jones & Co., Inc., offers two models of its CMV automatic cartoning machines in an eight-page brochure. These units take a flat carton from a magazine, open it, tuck bottom flaps, convey open carton past manual loading stations, tuck top flaps, and deliver the loaded carton. Circle No. **172.**

Container Handling Equipment

Island Equipment Corp. offers Bulletin ST-1, which lists specifications for a variety of straightline and rotary unscrambling tables, accumulating tables, lateral curve conveyors, and special purpose conveyors. This booklet is well illustrated with photographs and mechanical drawings, and includes a chain conveyor engineering data table as well as a tabulation of coefficients of friction. This equipment is designed to handle bottles, jars, and cans. Circle No. **173.**

Imprinting Machine

Adolph Gottscho, Inc., has a bulletin describing its Markocoder, a portable imprinting machine. The Markocoder may be wheeled up and adapted to any line, and occupies an aisle space 24"x30". This automatic machine needs no operator, can be shifted from one line to another, and can handle with the use of change parts, a variety of container sizes. It imprints up to 600 units/min. The Markocoder is especially adapted for the imprinting of drug, cosmetic, dairy, beer, and paint containers, as well as for products requiring a bottom code, price mark, or other changeable legends. Circle No. **174.**

Gummed Taped Tips

Gilman Paper Co. has two handy folders listing helpful suggestions for getting the best results from your gummed and reinforced gummed sealing tape. Circle No. **175.**

Stainless Steel Containers

U. S. Steel Products Div. manufactures a complete line of stainless steel drums and pails that are described in a four-page folder. Containers of 5 to 55 gal. capacities are standard, but special sizes can be manufactured for particular needs. These containers completely protect against the contamination of such products as acids, chemicals, drugs, foods, etc. Circle No. **176.**

Fibre Cans

R. C. Can Co. manufactures a wide range of convolutely wound and spirally wound fibre cans that are illustrated with specifications in a current eight-page catalog. These packages are available in square, oval, round, and oblong shapes. Twelve different specialty metal-end tops are pictured, as well as illustrations of seven kinds of moisture and grease resistant wraps and liners that are available. Circle No. **177.**

Aerosol Valves

The Risdon Mfg. Co., Valve Div., is offering a bulletin on its GB valve. The operation of the valve is described and illustrated in detail. It also discusses a number of actuators that can be supplied, any of which can be used depending on the needs of the packager. Also included is some basic information on pressurized packaging. Circle No. **178.**

Pressure Sensitive Tape

Behr-Manning Co. has an illustrated folder describing the popular uses of 22 of its pressure sensitive tapes. Circle No. **179.**

Bottle Labels Adhesives

H. B. Fuller Co. has a new booklet, "Adhesives for Bottle Labels," which contains illustrations plus technical data on 22 different adhesive products used by bottle labelers. Sections feature general type labeling adhesives, ice-proof products, and case sealing adhesives. Circle No. **180.**

Notched Label Code Dating

Griffin-Rutgers, Inc., offers an illustrated data sheet describing the Codege Mark II. This machine cuts a series of unnoticeable notches in one edge of a packet of labels; the code is easily read with a code card. Labels of all sizes and shapes may be coded in packets up to 500 or more at a time, producing 2,000 coded labels/min. Codes can be formed to identify dates, batch numbers, operators, etc., on labels, cartons, and bags. Circle No. **181.**

Burst Strength Tester

B. F. Perkins and Son, Inc., offers an information sheet listing seven different models of the Mullen Tester. This instrument is used to determine the p.s.i. bursting strength of sheet materials such as paper, corrugated, and solid fibreboard, and plastics films. Pressures up to 2,500 p.s.i. can be determined. Circle No. **182.**

Stencil Inks

Reynolds Inks, Inc., has a revised combination folder and color card describing its line of stencil inks that spray on from an aerosol container. The folder has illustrations of typical applications such as the stenciling of cartons, fabricated metal parts, steel drums, and the color coding of steel. Circle No. **183.**

Boxboards

Columbia Box Board Mills, Inc., has published a sample swatch demon-

strating its Krafibre line of kraft boxboard. This board is particularly suited for use in the box packaging of hardware, toys, automotive and mechanical parts, etc. It is available in white and dark colors, and has a caliper range of .016 to .050. Included with this swatch is a tabulation of various boxboards used in packaging which enumerates their types, [illegible] and characteristics. Circle No. **184.**

Multiwall Bag Closures

International Paper Co., Bagpak Div., offers an interesting brochure which demonstrates actual bag end samples of its Cushion-Stitch closure for multiwall paper bags. It is comprised of a twisted kraft paper reinforcing cord that lays across the end of the bag; thread is then stitched around the cord and through the bag. The kraft paper cord forms a cushion that absorbs the strain or handling or dropping and prevents the stitching from pulling through the bag walls. Circle No. **185.**

Label Paster

Potdevin Machine Co. has a data sheet picturing its label paster and coating machine with a semi-automatic friction demand feed. Available in 6″, 9″, or 12″ widths, it handles ungummed labels of 2″ minimum length. The touch of a lever delivers a coated label ready for application. Circle No. **186.**

Polyethylene Bags

The Visking Corp. has a concise folder, "It's Not the Price of the Bag." It enumerates nine factors to be considered in determining the actual cost of printed polyethylene bags. Circle No. **187.**

Collapsible Metal Tubes

A. H. Wirz, Inc., has released a comprehensive manual devoted to the proper selection and use of fold-up metal tubes. This 32-page handbook includes data on such specification factors as tube size, tube openings, tube closures, and tube liners. Selector charts serve as guides in determining the compatability of various products with such tube metals as aluminum, tin, and special alloys. Circle No. **188.**

Polyethylene Film

Spencer Chemical Co. has published a comparative film property data sheet. It compares its "Poly-Eth-Hi-D" 2504 with conventional density polyethylene in respect to such characteristics as melt index, tensile strength, elongation, tear strength, etc., and refers to the ASTM test methods used. Circle No. **189.**

Skin/Blister Packaging

Comet Industries has information and specifications on its new "Quick-Pak" automatic skin packaging and blister forming machine that fabricates and slits packages to size. Dual loading stations and automatic indexing of ten platens permits high-speed, mass production of skin packaging or blister and vacuum forming. The unit is available in two models. Model 22 has a mold area of 22″ x 30″, depth drape or draw of 6″, dry cycle/min. of 12; Model 23 has a mold area of 24″x 36″, depth drape or draw of 6″, and dry cycle/min. of 10. Circle No. **190.**

AMA releases new edition of packaging booklet

The revised edition (1958) of *Know Your Packaging Materials* has been released by the Packaging Division of American Management Association. First published in 1955 as Packaging Series 46, it is now designated as AMA Management Report No. 5.

Over half of the original papers have been rewritten, some by new authors. The others have been materially re-edited and brought up to date. More than 20 new tables, charts, and illustrations have been added to make available much basic packaging information in easy-to-use reference form. As a handy, basic guide, it should prove helpful to anyone involved in packaging – especially as an aid to orienting newcomers to the field.

Divided into three parts, the entire report contains 128 pages. The first part covers aluminum foil, glassine and greaseproof papers, label and box-wrap papers, and boxboard. A description of its manufacture, its various properties, uses in laminations and with coatings, printability, and its application to packaging all make up a concise story on aluminum foil. The section on glassine and greaseproof papers discusses the difference between the two, their grades, and uses. Further, it includes a brief resumé on unconverted, wax-laminated, and coated glassines.

The uses of paper for labels and box wraps is summarized by discussing applications of different weight papers – broken down into three types, namely, identifying, protective, and decorative. A substantial amount of detailed information on boxboard covers its manufacture, the various grades and their primary uses, and special treatments available. It stresses the fact that mills must have specific information to produce a satisfactory board for carton making. A list of such information required is shown. Functional variations and combinations are explained. They include such materials as grease-resistant laminations, foil-laminated, polyethylene-coated, insect-repellent, wax-coated, mold-resistant, and other types of boards.

The more frequently used packaging films are discussed in the second part. They include acetate, cellophane, methyl cellulose, Mylar polyester film, polyethylene, polystyrene, Pliofilm, saran, and vinyls. For most of these, physical and chemical properties and the packaging applications are reviewed. In some instances, printability, machineability, sealability, coatings, use in laminations, and limitations are discussed. Charts and tables aid in presenting some of the information.

Foam plastics are covered in the last part. Included are expandable and expanded polystyrene, vinyl foam and sponge, and urethane foams. Their mechanical and cushioning properties, as well as physical and chemical properties are shown. The discussions of how the plastics are "foamed" are interesting. A review of their packaging characteristics, insulating properties, and other applications completes the report.

It is available at $3.00 a copy (AMA members: $2.00) from the American Management Association, 1515 Broadway, New York 36, N.Y.

Two schools announce package engineering courses

Rutgers University and Stevens Institute of Technology are planning evening courses in packaging for the coming fall semester. Registration for both courses takes place this month.

Rutgers University, Newark Center, is offering a new packaging course, Modern Packaging Techniques. It is intended as an advance course for students who have taken the Industrial Packaging course regularly offered at Rutgers. The modern packaging techniques classes will begin September 24, 1958, and run through January, 21, 1959, meeting weekly on Wednesdays from 8:10 p.m. to 9:50 p.m. Instructors for this course will be members of the Society of Industrial Packaging and Materials Handling Engineers. Rutgers' industrial packaging course will be scheduled for the 1959 spring semester.

More information on the modern packaging techniques course may be obtained from Mr. George Tapper, Director, Newark Center, 53 Washington Street, Newark. Registration, direct or by mail, takes place from September 2-19 at the 53 Washington Street address.

Stevens Institute of Technology will again offer a 16-week course, Materials Handling and Packaging, under the direction of its Industries Training School. Mr. Walter Friedman, senior engineer at Container Laboratories, Inc., will teach this course, as he has done for the past three years.

The materials handling and packaging classes will include the following topics: Materials handling—including methods, equipment and systems; case studies of production, warehousing, and shipping, including plant layout, automation, palletized shipments, and car loading; and industrial packaging—including container types and design; package testing and machinery; domestic and military regulations. Plant tours and films supplement lecture material.

Classes meet weekly on Mondays from 6:50 p.m. to 9:20 p.m., and will run from September 25, 1958, through January 30, 1959. The tuition fee is $50.00 and there is a registration fee of $5.00. Further information concerning the course and how to register may be obtained by contacting Mr. L. Edwin Backer, Director, Industries Training School, Stevens Institute of Technology, Hoboken, New Jersey.

Two other schools are planning packaging courses to be offered later on in the year. The University of Massachusetts' Department of Food Technology will offer a graduate course in Food Packaging beginning in February. This course is open only to regularly enrolled graduate students majoring in Food Technology at Massachusetts, however. The course is under the direction of Mr. Arthur S. Levine, who may be contacted at the Department of Food Technology, University of Massachusetts, Amherst, Massachusetts.

Purdue University is planning to hold its Packaging Short Course again, but no date has been set for it at this time. In the past this has been a two-week course designed for men who are supervising or working in packaging, packing, shipping and traffic departments, or those who are concerned with purchasing, testing, and otherwise working with packaging materials. Further information may be obtained from Mr. Merle M. McClure, Assistant Director, Purdue University, Div. of Adult Education — Conferences, West Lafayette, Indiana.

Factors affecting packaging line speed

(*Continued from Page 21*)

maintenance force in the plant.

Increased Preventive Maintenance

To realize the full benefits of a high-speed line, preventive maintenance must be stepped up. Expendable parts have to be replaced sooner or oftener. Critical parts may wear out faster and have to be readily available to have the unit back in production.

To properly schedule preventive maintenance, downtime experienced must be evaluated to find all causes contributing to its occurrence. Steps must be taken to prevent reoccurrence. Only if unavoidable downtime loss to total output remains at the same ratio (or better—decrease) will it be worthwhile to consider higher speed units.

Speed boosts losses. If a line operating at 240 units/min. had a downtime causing a loss in efficiency of 8 per cent, the same number of minutes of downtime would cause a 10 per cent loss in a line operating at 300 units/min. An accordingly higher number of units would not be processed during downtime. The point is to try to keep the ratio of downtime *loss* to *total production* the same or decrease it.

From these points, it follows that one does not automatically buy equipment of higher speed when new installations are considered. The limitations governing operation of the plant may well justify, for most efficient and economical production, staying with speeds lower than those available.

5. REPORTS: TOOLS OF EVALUATION

In approaching this subject, a lost time report is a useful tool. It should be issued each day and should show time (and production) losses for each line and compo-

nent. Management, from the line supervisor up, should be able to spot at a glance any weak spot, be it caused by a one-time breakdown, by an inefficient piece of equipment, or an ill-advised procedure.

Our daily lost time reports are divided into four categories: (1) Mechanical; (2) materials; (3) normal operation, and (4) miscellaneous. A separate column lists crown or lid change downtime.

What report includes. A typical report may show under "mechanical" 14 minutes lost for replacing a filler drive belt; under "material" 23 minutes lost due to bottle explosions on filler and accompanying clean-ups. Under "normal operations" we find downtime due to changing from returnable to nonreturnable bottles, dry-out time, scheduled changes of brushes, changing of valves, tubes, seaming rollers, etc. Under "miscellaneous," we find such items as bent cans in cable conveyors, case jams at a vulnerable conveyor line, new personnel, dumping 12/12 cases at can unscrambler, etc.

Make Them Specific

Of utmost importance is to show a specific cause or reason for each downtime listed. The same term must be used by each shift to describe the identical occurrence and its duration. Only with such uniform and detailed information can supervision and management function effectively in this area.

Another useful production tool is the *packaging plant production analysis* issued daily by our organization. It not only shows scheduled operating time in each production area but downtime grouped in such major operations as uncasing/unscrambling, washing/rinsing, filling, pasteurizing, inspecting, labeling, packaging, and gluing/taping.

Production loss is analyzed on this one-page sheet so that management may determine at a glance the performance of each packaging plant area for a given day. With the aid of these reports, it is by far simpler to decide on improving line performance by installing single, more efficient components, or scrapping entire lines for replacement by more modern higher speed developments of an ever-progressing industry. (*End*)

Polyethylene density: Yardstick of classification and performance

(*Continued from Page 26*)

of the cost of that film.

In the last analysis, it depends upon what you are packaging and what needs to be kept in or out of the package. For instance, live tropical fishes can be packaged in polyethylene film because it is permeable to oxygen and carbon dioxide. If higher density film is used, permeability is decreased and the fishes might have breathing problems. If you reduced film thickness to compensate, the bag might have insufficient strength to hold the water.

Problem Of Balance

This emphasizes that one must consider the best over-all balance of film properties for a given use. You very seldom get something for nothing. An improvement in one property may lower another pertinent property to an unwise level. Proper film processing, taking advantage of the way strength properties can be varied by the ratio of bubble size to die size in the case of tubular film and by degree of stretching in the case of flat film, can oftentimes minimize some of these problems.

Limiting factors. Similarly, if we are dealing with polyethylene-extrusion-coated materials, paper, or cellophane, for instance, we must recognize that it is the balance of properties of that laminate which are important. The thickness and type of paper used have a marked effect on finished properties, as does the type of polyethylene. In many of these cases, the substrate markedly limits some of the properties of the polyethylene. For example, unsupported polyethylene film can be stretched up to 600 per cent. When combined with paper with a good bond, however, the polyethylene breaks when the paper breaks at elongation, about the same as the paper itself.

Therefore, it is important in packaging applications to know the effect of density on polyethylene film and to compare it on this basis both within and among the ASTM Types I, II, and III. Further consideration of the total balance of properties to best serve a given application should be made in the light of these density effects on physical properties. (*End*)

CLASSIFIED ADVERTISING

Our classified advertising section is intended for use by those wishing to buy or sell used packaging equipment, to employ packaging personnel, seek such employment, offer or seek business opportunities. It is not available for general advertising. Terms: Cash with order. Rates: Up to 60 words, $10.00. If boxed, $20.00. Over 60 words, $40.00 per column inch.

Representatives Wanted — To handle line of well-known metal cleaning and preservation tanks, silica gel, etc. Calling on aircraft and missile mfgrs. California, Ohio, Texas, Michigan, Wisconsin, good commission. D. C. Cooper Co., 1467 S. Michigan Ave., Chicago. Telephone: HA-7-8046.

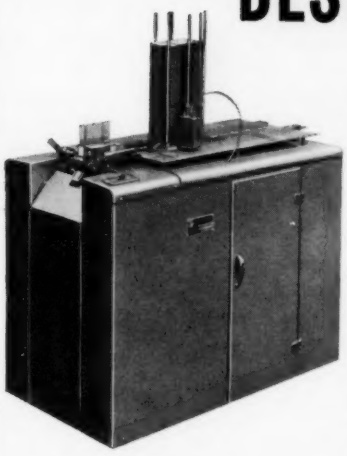
For Sale — Miehle #4 Press 27" x 41". Two semi-automatic Miller Wrapping and Sealing machines, for cellophane, other films, model MPU8. One Diehl Mateer powder filler, model 31A. All in good condition. Best offer. Sparks Corporation, 4111 Pechin Street, Philadelphia 28, Penna. Telephone: Ivyridge 3-7330.

Representatives Wanted — To handle line of tanks for heating tar, pitch, asphalt, wax, and plastic, dip tanks for metal parts cleaning, etc., U/L approved. Established accts. Good commission. D. C. Cooper Co., 1467 S. Michigan Ave., Chicago. Telephone: HA-7-8046.

Index of Advertisers

A-B-C Packaging Machine Corp. 55
American Rondo Corp. 41
Avion Div., ACF Industries, Inc. 52
Battle Creek Packaging Machines, Inc. 42, 43
Bivans Corporation 71
Brown Filling Machine Co. 57
Ralph Chaffee Co. 61
Consolidated Packaging Machinery Corp. 52
Crown Zellerbach Corp., Gaylord Container Corp. Div. ..36, 37
Crystal Tissue Co. 38
The Dobeckmun Company 9
Dow Chemical Company 13
Economic Machinery Co. 65
Elgin Manufacturing Co. 61
George D. Ellis & Sons Inc. 30
J. L. Ferguson Co. 11
Frazier & Son 30
Gaylord Container Corp., Div. Crown Zellerbach Corp. ..36, 37
Girdler Process Equipment Div., Chemetron Corp. 39
The Goodyear Tire & Rubber Co. 3
Adolph Gottscho, Inc. 10
Hayssen Mfg. Co. 40
Hope Machine Co. 53
Impact-O-Graph Corp. 53
R. A. Jones & Co., Inc. ..... back cover
King Sales & Engineering Co. 45
The Lakso Company 55
Ludlow Papers, Inc. 14
Machinery Service Co. 38
Markem Machine Co. 48
Marsh Stencil Machine Co. 6
Mid-States Steel & Wire Co. 49
Miller Wrapping & Sealing Co. 59
Minnesota Mining & Mfg. Co. 35
Olin Mathieson Chemical Corp. 47
Oliver Machinery Co. 63
Peters Machinery Co. 53
Pitney-Bowes, Inc. 15
Pneumatic Scale Corp., Ltd. 17
Post Machinery Co. 57
Potdevin Machine Co. 63
Radio Frequency Co. 45
Resina Automatic Machinery Co., Inc. 44
Reynolds Ink, Inc. 63
Reynolds Metals Company 1
Riegel Paper Corp. 5, 27
Scandia Packaging Machinery Co. ..... inside front cover
Swift & Co., Adhesive Products Dept. 16
Thilmany Pulp & Paper Co. 18
Triangle Packaging Machinery Co. 12
United Shoe Machinery Corp. ..... inside back cover
Union Bag-Camp Paper Corp. 34
Vulcan Containers, Inc. 7
Waxed Paper Merchandising Council, Inc. 31
Wheeling Stamping Co. 32

STILL YOUR BEST BUY!



MODEL 50 TUCK-O-MAT

for speeds up to 75 cartons per minute, this semi-automatic time-saver cuts hand-cartoning costs 70%. Still only $2775.

Let our representative show you

BIVANS CORPORATION
2431 DALLAS ST., LOS ANGELES 31, CALIF.
Distributed by New Jersey Machine Corp.
Hoboken, Cincinnati, Chicago, Los Angeles

For more information circle No. 252 on Card

NEED A COPY of some PACKAGE ENGINEERING Article from past issues?

The following articles, among others, are available in reprint form. Single copies will be sent "no charge" if you write us on your company letterhead.

Choosing and using metal containers for chemical specialty products—**G. E. Curtis and L. M. Garton**

How barrier coatings enhance packaging laminations—**Carl Ireton**

Intricacies of screw threads for collapsible tubes—**Mark Dresden**

Measuring gas transmission of flexible materials in pouch form—**C. L. Brickman**

Problems in the quality control of multiwall bags—**Donal O'Connor**

Quality control—when, where, and how—**Paul K. Leatherman**

PACKAGE engineering

185 N. Wabash Avenue • Chicago 1, Illinois

What we think

Getting tomorrow's packaging line mechanics

A critical shortage of packaging line mechanics is no longer a mere possibility. Many companies already find it hard to acquire and develop them. It is time we take a look at this problem and see what we can do about it.

The obvious solution is to induce our vocational and trade schools to train young men for this vital work. But you don't just call up the principal of your local school, tell him you need some packaging line mechanics, and ask him to set up a course.

These school administrators have to be sold on your needs. And before you can aggressively merchandise your needs to them, you have a more basic job to do—in selling company management the importance of a packaging line mechanic.

Too few companies give enough recognition and pay to the key men who keep the lines humming and work under great pressure to get a stopped line back in the running. Many top managers don't know, and some don't even suspect, just how valuable these mechanics are.

Merchandise the mechanic to management

Most top executives are concerned with (and may be interested only in) costs. An ingenious plant manager or superintendent having to sell his top office on the packaging line mechanic's job will find a way to dramatize his importance in terms of money. Focal point of this effort is to demonstrate the cost of a line that is not producing.

Experts here and there cite specific costs, say, $2 or $3 a minute, or $150 an hour, or something like that. We hesitate to throw these figures out because a figure stands up only in its particular context.

The point is for each man to work out for himself just what it costs when a line is down. Some experts say it is a mistake to count only the labor and machine time involved. They insist these factors combine with others to the extent that the only fair measure is the wholesale price of what is *not* made.

No matter how you do it, the main job is to show in terms of money how much it costs not to be making and packaging something, and show how to cut down or avoid these losses by having enough well-trained, fast-moving packaging line mechanics.

During our college days, we vividly recall a loose brick on a much-used path. Students tripped over it hundreds of times. This went on for weeks. One day the Dean tripped on it. In about an hour, the buildings and ground crew had it fixed. Applying this idea to the problem of the packaging line mechanic's job, we suspect that once management grasps the problem, it will quickly wave you "highball!" and point to a clear track ahead.

Show the schools the mechanic's importance

From then on it should be easier. You bring the heads of your trade and vocational schools into your plants and show them all around. They see just what a packaging line mechanic does and how vital his job is. You might even send them a few pieces of your obsolete machinery to use in their schools. And once you get the course set up, it pays to keep on good terms with the teachers and advisers. Have them in occasionally, keep them informed on your needs. Their suggestions can swing students to packaging.

There is nothing a teacher likes better than to see his students succeed and to know that his teaching meets a real need. When he sees your management means business and provides the opportunity, recognition, and pay these mechanics deserve, he will go a long way in selling the job to the young men who in due time will keep your plants running.

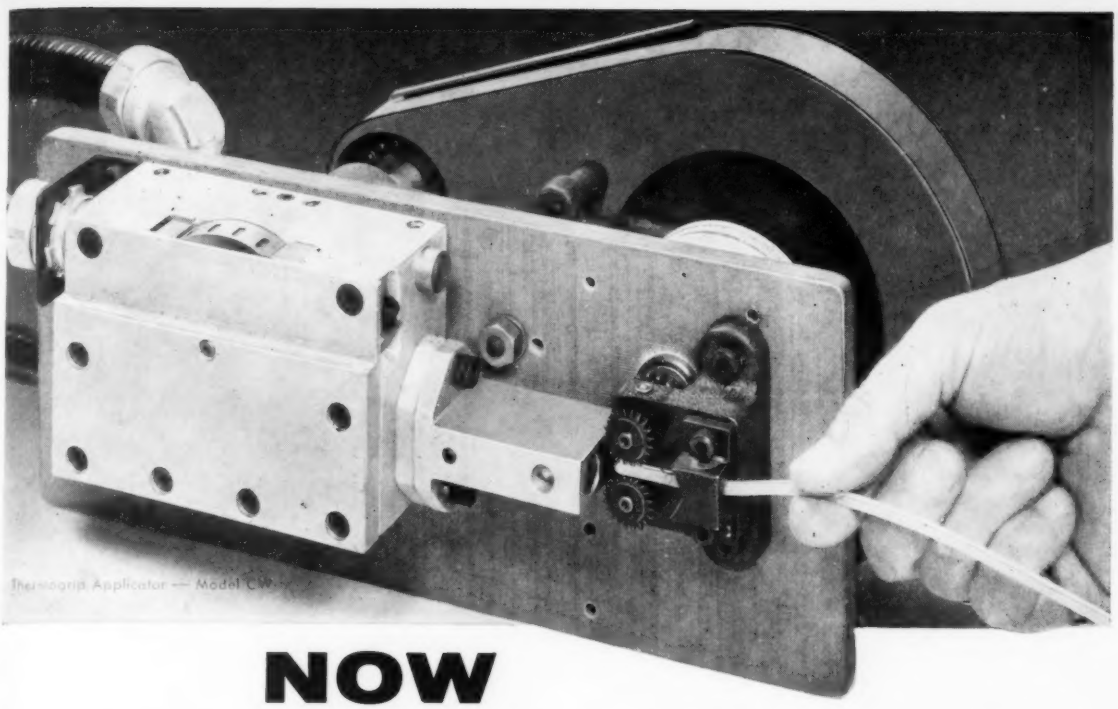
You can't train these men in your own plants as well as the schools can do this for you. To be sure, you can give them the U. S. Employment Office's B-393 aptitude test for packaging line mechanics, which measures the key aptitudes: (1) Spatial ability; (2) finger dexterity, and (3) manual dexterity.

But once you get a young man who passes these tests with flying colors, what do you do? Assign him to work with more experienced mechanics? Let him work his way from simple through complex machinery and sort of orient him around the plant?

Some companies spot potential mechanics very carefully, others stumble onto them through chance. Trying to train your own in the long run is just an expedient. The real benefits will come from getting the established trade, technical, and vocational schools to do this job for you.

Bruce Hollingren

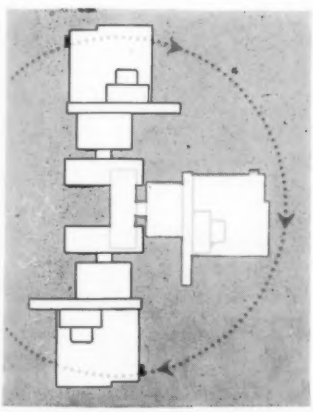
Editor



NOW APPLY THERMOGRIP®

adhesive in Dots-Dashes or Continuous Line

at Any Angle!



The new Thermogrip CW unit can be mounted vertically, horizontally, upside down, or at any angle. A better adhesive made more adaptable — more useful.

This new THERMOGRIP Applicator is a complete "packaged" adhesive system which applies hot-melt adhesives with a transfer wheel in a dot, dash, or broken-line pattern on box and package ends or sides, or any other object that can be passed next to a glue roll! It will apply THERMOGRIP Adhesive up to ½" wide and can be mounted vertically, horizontally or at any angle.

When adapted to your equipment, you can increase your production speed, improve quality and appearance of work and increase your success with the bonding of difficult-to-stick material such as foils, polyethylene, slippery surface papers, boards, fabrics or porous materials.

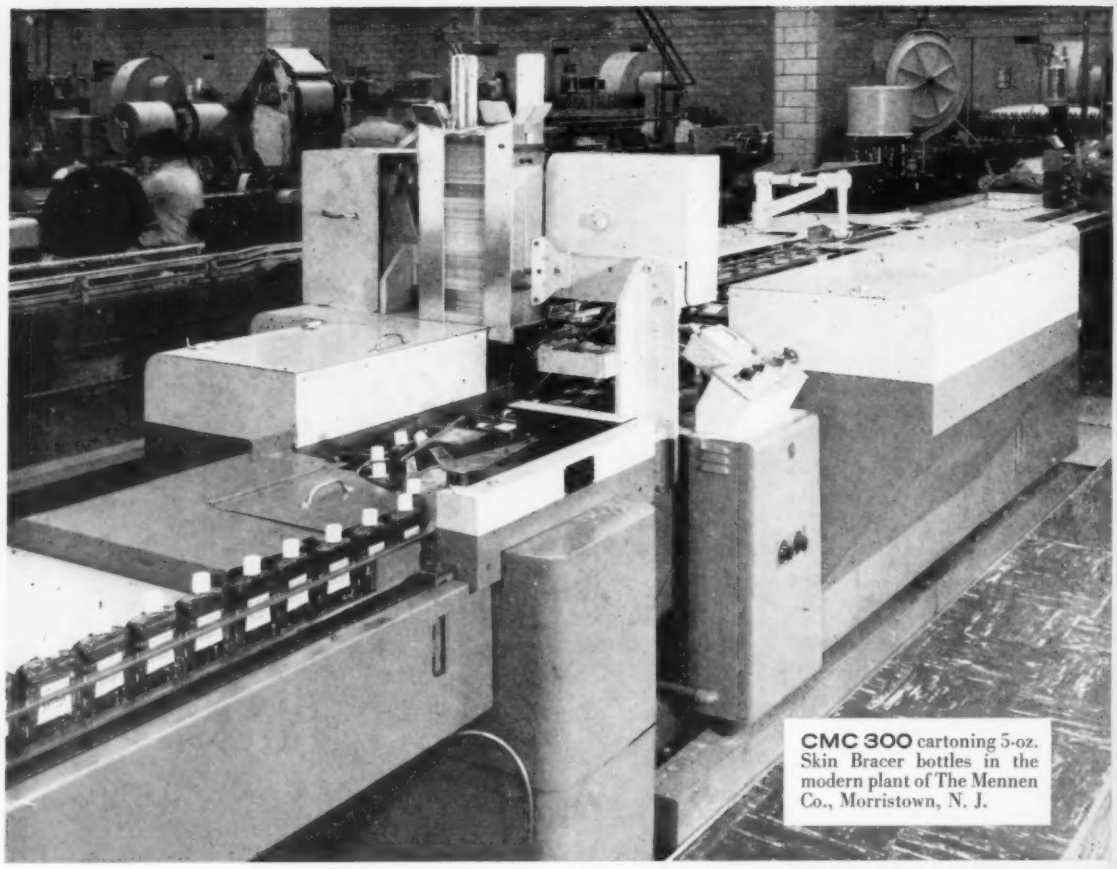
The Applicator feeds fresh THERMOGRIP Adhesive from coils at just the speed, consistency and amount you need. Flip a switch 15 minutes before starting and turn off at the end of the day — no clean up, no mixing, no mess.

If you would like to enjoy this modern — better way of applying your adhesive, contact us right away.

United

SHOE MACHINERY CORPORATION
140 FEDERAL STREET, BOSTON, MASS.

For more information circle No. 253 on Reader Service Card



CMC 300 cartoning 5-oz. Skin Bracer bottles in the modern plant of The Mennen Co., Morristown, N. J.

Cartoning at 300+ with the new Jones CMC-300

PROBLEM How to increase production to 200—300—even 400 cartons per minute without plant expansion—and to obtain additional savings in reduced labor and maintenance costs.

SOLUTION Successful, forward looking concerns like The Mennen Co. are anticipating these "facts of packaging life" by investigating and buying the new Jones CMC 300. It is designed to handle small and medium size bottles, tubes and other products, 180 to 400 per minute. It is equally justified on larger cartons at lower speeds.

The CMC 300 is not a superficially "souped-up" version of an old model. It is basically engineered to perform at 300+ with the same efficiency, and with less wear and maintenance, than older machines at 150 per minute. CMC 300 performance is based on:

1. Fundamental principles of product and carton handling.
2. The most durable and shock-proof power train ever employed on a cartoner.
3. A heavy, vibration-free cast iron frame.
4. Use of the finest materials and commercial parts.

If your product is cartoned in large volume, 300+ per minute is now practical and profitable—it will soon be an economic "must." Let us show you a Jones CMC 300 at our factory or in actual production.

R. A. JONES & COMPANY, INC.
Cartoning Machines - Soap Presses

P. O. BOX 485 CINCINNATI 1, OHIO
Branch Offices
New York • Chicago • St. Louis • Los Angeles
San Francisco • Seattle • Mexico D. F.

For more information circle No. 254 on Reader Service Card

+

ever
r.
cast

rials

arge
now
will
Let
0 at
ion.

HIO

geles
). F.